

ZIMMERMAN EXHIBIT 1

February 2013
Previous 10 Years

VITAE

MARC A. ZIMMERMAN

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EDUCATION

- B.S. University of Massachusetts, Psychology (1976).
- M.S. University of Oregon, Graduate College Interdisciplinary Studies Program, Community Psychology (1980) Thesis: Evaluation of a Youth Employment and Training Program.
- Ph.D. University of Illinois, Department of Psychology, Personality and Social Ecology Program (1986) Minor: Quantitative Methods and Social Policy Thesis: Citizen Participation, Perceived Control, and Psychological Empowerment.

ACADEMIC EMPLOYMENT EXPERIENCE

- 1986-1988 Assistant Professor, School of Public Affairs, American University, Washington, DC.
- 1989-1995 Assistant Professor, Department of Health Behavior and Health Education, School of Public Health, University of Michigan, Ann Arbor.
- 1995-2001 Associate Professor, Department of Health Behavior and Health Education, School of Public Health, and the Combined Program in Education and Psychology, University of Michigan, Ann Arbor.
- 1999-2002 Associate Professor, Department of Psychology, College of Literature, Science and the Arts, University of Michigan, Ann Arbor.
- 2001-present Professor, Department of Health Behavior and Health Education, School of Public Health.
- 2001-present Research Professor, Center for Human Growth and Development, University of Michigan.
- 2002-present Professor, Department of Psychology, College of Literature, Science and the Arts, University of Michigan.
- 2002-present Executive Committee, Combined Program in Education and Psychology, School of Education, University of Michigan
- 2003-2004 Interim Co-Chair, Department of Health Behavior and Health Education, School of Public Health.

2010-present Executive Committee, Center for Human Growth and Development, University of Michigan

2004-present Chair, Department of Health Behavior and Health Education.

FELLOWSHIPS AND AWARDS

2005 University of Michigan, School of Public Health Excellence in Research Award.

2009 Distinguished Contribution to Theory and Research Award, the Society for Community Research and Action (Division 27 of the American Psychological Association).

2010 Distinguished Fellow Award from the Society of Public Health Educators (SOPHE).

2011 Hometown Health Hero Award, Michigan Department of Community Health

RESEARCH GRANTS AND CONTRACTS

1998-2004 Centers for Disease Control, Community Collaboration in Public Health Research - Demonstration Project. Director and Co-PI with Noreen M. Clark, Principal Investigator (\$2,578,000 direct costs).

1999-2004 National Institute on Drug Abuse, A Longitudinal Study of School Dropout and Substance Use. Principal Investigator (\$2,684,324 direct costs).

2000-2008 National Institutes of General Medical Science, Promoting Ethnic Diversity in Public Health Training. Co-Investigator with Harold W. Neighbors, Principal Investigator (\$1,659,387 direct costs).

2003-2005 Centers for Disease Control, Flint Youth Violence Prevention Center. Principal Investigator (\$2,990,870 direct costs).

2004-2008 Centers for Disease Control, Youth Empowerment Solutions for Peaceful Communities, (YES). Principal Investigator (\$1,587,300 direct costs).

2004-2009 Centers for Disease Control, Community Collaboration in Public Health Research (PRC). Director and Principal Investigator (\$3,366,584 direct costs).

2004-2009 National Institute on Alcoholism and Alcohol Abuse, Tailored Teen Alcohol and Violence Prevention in the ER. Co-Investigator with Maureen Walton, Principal Investigator (\$2,323,767 direct costs).

2005 State of Michigan Department of Community Health, Michigan Model Curriculum Evaluation. Principal Investigator (\$13,997).

2005-2009 National Center on Minority Health and Health Disparities (NCMHD), Minority Health and Health Disparities International Research Training (MHIRT). Co-Investigator with David Stern, Principal Investigator (\$737,000 direct costs).

- 2005-2010 National Institutes of Health (NIDA), *Tailored Youth Drug Intervention in Primary Care*. Co-Investigator with Frederic C. Blow, Principal Investigator. (\$1,681,484 direct costs).
- 2007-2010 Ruth Mott Foundation, Collaborative Evaluation of the Ruth Mott Foundation's Beautification Program. Co-Investigator with Thomas Reischl, Principal Investigator (\$590,679 total budget).
- 2007-2017 National Institutes of Health (NCRR), Michigan Institute for Clinical and Health Research. Co-Director of Community Engagement Program, D. Clauw/K. Pienta/T. Shanley, Principal Investigator. (\$54,000,000 total budget).
- 2007-2012 National Institute on Drug Abuse, A Longitudinal Study of School Dropout and Substance Use, Principal Investigator (\$2,893,094 total budget).
- 2008-2010 National Institute on Alcoholism and Alcohol Abuse, Protective Factors for Alcohol Use among Urban Adolescents Principal Investigator (\$100,000 direct costs)
- 2008-2010 National Institute for Child Health and Human Development, Partners in Research Engagement for Action, Principal Investigator, (\$100,000 direct costs)
- 2009-2011 National Institute on Drug Abuse, Virtual Network Influences on Young Adults' Alcohol and Drug Use, Principal Investigator (\$1,000,000)
- 2009-2011 National Institute of Mental Health, Locally-Tailored Prevention Programming for Children of Incarcerated Mothers, Co-Investigator with Alison Miller, Principal Investigator (\$250,000)
- 2009-2011 National Institute on Drug Abuse, Substance Use and Violent Injury Among Youth in an Urban ED: Services and Outcomes, Co-Investigator with Rebecca Cunningham Principal Investigator (\$2,000,000)
- 2009-2014 Centers for Disease Control, Community Collaboration in Public Health Research (PRC), Director and Principal Investigator (\$4,000,000).
- 2010-2015 Centers for Disease Control, Michigan Youth Violence Prevention Center, Director and Principal Investigator (\$6,491,703)
- 2010-2015 National Institute for Child Health and Human Development, Youth Empowerment Solutions for Positive Youth Development (YES), Principal Investigator (\$2,000,000)

REFEREED ARTICLES

1. Bryant, A.L., Zimmerman, M.A. (2003). Role models and psychosocial outcomes among African-American adolescents. *Journal of Adolescent Research*, 18(1), 36-67.
2. Steinman, K.J., Zimmerman, M.A. (2003). Episodic and persistent gun-carrying among urban African-American adolescents. *Journal of Adolescent Health*, 32, 356-364 [PMID: 12729985]

3. Chavous, T.M., Bernat, D.H., Schmeelk-Cone, K.H., Caldwell, C.H., Kohn-Wood, L.P., Zimmerman, M.A. (2003). Racial identity and academic attainment among African American adolescents. *Child Development*, 74(4), 1076-1090 [PMID: 12938705]
4. Sellers, R.M., Caldwell, C.H., Schmeelk-Cone, K.H., Zimmerman, M.A. (2003). Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *Journal of Health and Social Behavior*, 44(3), 302-317 [PMID: 14582310]
5. Caldwell, C.H., Chavous, T.M., Barnett, T.E., Kohn-Wood, L.P., Zimmerman, M.A. (2003). Social determinants of experiences with violence among adolescents: Unpacking the role of race in violence. *Phylon*, 50, 87-113.
6. Zimmerman, M.A., Schmeelk-Cone, K.H. (2003). A longitudinal analysis of adolescent substance use and school motivation among African American youth. *Journal of Research on Adolescence*, 13(2), 185-210.
7. Schmeelk-Cone, K.H., Zimmerman, M.A. (2003). A longitudinal analysis of stress in African American youth: Predictors and outcomes of stress trajectories. *Journal of Youth and Adolescence*, 32(6), 419-430.
8. Caldwell, C.H., Kohn-Wood, L.P., Schmeelk-Cone, K.H., Chavous, T.M., Zimmerman, M.A. (2004). Racial discrimination and racial identity as risk or protective factors for violent behaviors in African American young adults. *American Journal of Community Psychology*, 33, 91-105 [PMID: 15055757]
9. Schmeelk-Cone, K.H., Zimmerman, M.A., Abelson, J.L. (2003). The buffering effects of active coping on the relationship between SES and cortisol among African American young adults. *Behavioral Medicine*, 29, 85-94 [PMID: 15147107]
10. Repetto, P.B., Zimmerman, M.A., Caldwell, C.H. (2004). A longitudinal study of the relationship between depressive symptoms and alcohol use in a sample of inner-city Black youth. *Journal of Studies on Alcohol*, 65, 169-178 [PMID: 15151346]
11. Caldwell, C.H., Wright, J.C., Zimmerman, M.A., Walsemann, K.M., Williams, D., Isichei, P.A.C. (2004). Enhancing adolescent health behaviors through strengthening non-resident father-son relationships: A model for intervention with African American families. *Health Education Research*, 19, 644-656 [PMID: 15199006]
12. Steinman, K.J., Zimmerman, M.A. (2004). Religious activity and risk behavior among African American adolescents: Concurrent and developmental effects. *American Journal of Community Psychology*, 33, 151-161 [PMID: 15212175]
13. Meliker, J.R., Maio, R.F., Zimmerman, M.A., Kim, H.M., Smith, S.C., Wilson, M.L. (2004) Spatial analysis of alcohol-related motor vehicle crash injuries in southeastern Michigan. *Accident Analysis and Prevention*, 36(6), 1129-1135 [PMID: 15350891]
14. Caldwell, C.H., Sellers, R.M., Bernat, D.H., Zimmerman, M.A. (2004). Racial identity, parental support, and alcohol use in a sample of academically at-risk African American high school students. *American Journal of Community Psychology*, 34(1/2), 71-82 [PMID: 15495795]

15. Peterson, N.A., Zimmerman, M.A. (2004). Beyond the individual: Toward a nomological network of organizational empowerment. *American Journal of Community Psychology*, 34(1/2), 129-145 [PMID: 15495799]
16. Zimmerman, M.A., Morrel-Samuels, S., Wong, N., Tarver, D., Rabiah, D., White, S. (2004). Guns, gangs and gossip: An analysis of student essays on youth violence. *Journal of Early Adolescence*, 24(4), 385-411.
17. Repetto, P.B., Caldwell, C.H., Zimmerman, M.A. (2004). Trajectories of depressive symptoms among high risk African-American adolescents. *Journal of Adolescent Health* 35(6), 468-477 [PMID: 15581526]
18. Repetto, P.B., Caldwell, C.H., Zimmerman, M.A. (2005). A longitudinal study of the relationship between depressive symptoms and cigarette use among African American adolescents. *Health Psychology*, 24(2), 209-219 [PMID: 15755235]
19. Fergus, S., Zimmerman, M.A., Caldwell, C.H. (2005). Psychosocial correlates of smoking trajectories among urban, African American adolescents. *Journal of Adolescent Research*, 20(4), 423-452 [PMID: 15760294]
20. Fergus, S., Zimmerman, M.A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*, 26, 399-419 [PMID: 15760295]
21. Njai, R., Zimmerman, M., Letcher, A., Bell, L. (2005). Know Y.A. R.O.O.T.S.: A youth empowerment program for violence prevention. *Community Youth Development Journal, Special Peer-Reviewed Issue*, 65-76.
22. Peterson, N.A., Lowe, J.B., Hughey, J., Reid, R.J., Zimmerman, M.A., Speer, P.W. (2006). Measuring the intrapersonal component of psychological empowerment: Confirmatory factor analysis of the sociopolitical control scale. *American Journal of Community Psychology*, 38, 287-297 [PMID: 16977501]
23. Ostaszewski, K., Zimmerman, M.A. (2006). The effects of cumulative risks and promotive factors on urban adolescent alcohol and other drug use: A longitudinal study of resiliency. *American Journal of Community Psychology*, 38, 237-249 [PMID: 17004127]
24. Fergus, S., Zimmerman, M.A., Caldwell, C.H. (2007). Growth trajectories of sexual risk behavior in adolescence and young adulthood. *American Journal of Public Health*, 97(6), 1096-1101 [PMC1874221]
25. Xue, Y., Zimmerman, M.A., Caldwell, C.H. (2007). Neighborhood residence and cigarette smoking among urban youths: The protective role of prosocial activities. *American Journal of Public Health*, 97(10), 1865-1872 [PMC1994184]
26. Bauermeister, J.A., Zimmerman, M.A., Barnett, T.E., Caldwell, C.H. (2007). Working in high school and the transition to adulthood among African American youth. *Journal of Youth and Adolescence*, 36, 877-890.

27. Kruger, D.J., Reischl, T.M., Zimmerman, M.A. (2008). Time perspective as a mechanism for functional developmental adaptation. *Journal of Social, Evolutionary, and Cultural Psychology*, 2, 1-22.
28. Repetto, P.B., Zimmerman, M.A., Caldwell, C.H. (2008). A longitudinal study of depressive symptoms and marijuana use in a sample of inner-city African Americans. *Journal of Research on Adolescence*, 18(3), 421-447. doi: 10.1111/j.1532-7795.2008.00566.x
29. Griffith, D.M., Allen, J.O., Zimmerman, M.A., Morrel-Samuels, S., Reischl, T.M., Cohen, S.E.,
30. Campbell, K.A. (2008). Organizational empowerment in community mobilization to address youth violence. *American Journal of Preventive Medicine*, 34, S89-S99 [PMID: 18267207]
31. Bauermeister, J.A., Zimmerman, M.A., Xue, Y., Gee, G., Caldwell, C.H. (2008). Working, sex partner age differences, and sexual behavior among African American youth. *Archives of Sexual Behavior*, Epub June 24 [PMC2745502]
32. Walton, M., Cunningham, R., Xue, Y., Trowbridge, M., Zimmerman, M.A., Maio, R.F. (2008). Internet referrals for adolescent violence prevention: An innovative mechanism for inner-city emergency departments. *Journal of Adolescent Health*, 43(3), 309-312 [PMID: 18710687]
33. Bauermeister, J.A., Zimmerman, M.A., Gee, G., Caldwell, C.H., Xue, Y. (2009). Work and sexual trajectories among African American youth. *Journal of Sex Research*, 46(4), 290-300. [PMC2722943]
34. Whiteside, L.K., Walton, M.A., Stanley, R., Resko, S.M., Chermack, S.T., Zimmerman, M.A., Cunningham, R.M. (2009). Dating aggression and risk behaviors among teenage girls seeking gynecologic care. *Academic Emergency Medicine*, 16(7), 632-638. [PMC2996237]
35. Walton, M.A., Cunningham, R., Goldstein, A.L., Chermack, S.T., Zimmerman, M.A., Bingham, C.R., Shope, J.T., Stanley, R., Blow, F.C. (2009). Rates and correlates of violent behaviors among adolescents treated in an urban emergency department. *Journal of Adolescent Health*, 45(1), 77-83. [PMC3000121]
36. Hurd, N.M., Zimmerman, M.A., Xue, Y. (2009). Negative adult influences and the protective effects of role models: A study with urban adolescents. *Journal of Youth and Adolescence*, 38(6), 777-789. [PMC2752426]
37. Xue, Y., Zimmerman, M.A., Cunningham, R. (2009). Relationship between alcohol use and violent behavior among urban African American youths from adolescence to emerging adulthood: A longitudinal study. *American Journal of Public Health*, 99(11), 2041-2048. [PMC2759810]
38. Franzen, S., Morrel-Samuels, S., Reischl, T.M., Zimmerman, M.A. (2009). Using process evaluation to strengthen intergenerational partnerships in the Youth Empowerment Solutions Program. *Journal of Prevention and Intervention in the Community*, 37(4), 289-301. [PMID: 19830624]
39. Cunningham, R.M., Walton, M.A., Goldstein, A., Chermack, S.T., Shope, J.T., Bingham, C.R., Zimmerman, M.A., Blow, F.C. (2009). Three-month follow-up of brief computerized and therapist interventions for alcohol and violence among teens. *Academic Emergency Medicine*, 16(11), 1193-1207. [PMC2981597]

40. Bauermeister, J.A., Zimmerman, M., Caldwell, C., Xue, Y., Gee, G. (2010). What predicts sex partners' age differences among African American youth? A longitudinal study from adolescence to young adulthood. *Journal of Sex Research*, 47(4), 330-344. [PMC2888807]
41. Griffith, D.M., Allen, J.O., DeLoney, E.H., Robinson, K., Lewis E.Y., Campbell, B. Morrel-Samuels, S., Sparks, A., Zimmerman, M.A., Reischl, T. (2010). Community-based organizational capacity building as a strategy to reduce racial health disparities. *The Journal of Primary Prevention*, 31(1-2), 31-39. [PMID: 20127281]
42. Cunningham, R.M., Walton, M.A., Roahen Harrison, S., Resko, S.M., Stanley, R., Zimmerman, M.A., Bingham, C.R., Shope, J.T. (2011). Past-year intentional and unintentional injury among teens treated in an inner- city emergency department. *Journal of EmergencyMedicine*, 41:4. e-pub. [PMC2892010]
43. Loh, K., Walton, M., Harrison, S.R., Zimmerman, M.A, Stanley, R., Chermack , S., Cunningham, R.M. (2010). Prevalence and correlates of handgun access among adolescents seeking care in an urban emergency department. *Accident Analysis and Prevention*, 42(2), 347-353. [PMC2853359]
44. Hindman, A., Skibbe, L., Miller, A.L., Zimmerman, M.A. (2010). Ecological contexts and early learning: Contributions of child, family, and classroom factors during Head Start to literacy and mathematics growth through first grade. *Early Childhood Research Quarterly*, 25, 235-250.
45. Elkington, K.S., Bauermeister, J.A., Zimmerman, M.A. (2010). Psychological distress, substance use, and HIV/STI risk behaviors among youth. *Journal of Youth and Adolescence*, 39(5), 514-517. [PMC2855969]
46. Cunningham, R.M., Resko, S.M., Harrison, S.R., Zimmerman, M.A., Stanley, R., Chermack, S.T., Walton, M.A. (2010). Screening adolescents in the emergency department for weapon carriage. *Academic Emergency Medicine*, 17(2), 168-176. [PMC2981595]
47. Hurd, N.M., Zimmerman, M.A. (2010). Natural mentors, mental health, and risk behaviors: A longitudinal analysis of African American adolescents transitioning into adulthood. *American Journal of Community Psychology*, 46(1-2), 36-48. [PMC2922467]
48. Kruger, D.J., Hamacher, L., Strugar-Fritsch, D., Shirey, L., Renda, E., Zimmerman, M.A. (2010). Facilitating the development of a county health coverage plan with data from a community-based health survey. *Journal of Public Health Policy*, 31(2), 199-211. [PMID: 20535102]
49. Wong, N., Zimmerman, M.A., Parker, E.A. (2010). A typology of youth participation and empowerment for child and adolescent health promotion. *American Journal of Community Psychology*, 46(1-2), 100-114. [PMID: 20549334]
50. Walton, M.A., Chermack, S.T., Shope, J.T., Bingham, C.R., Zimmerman, M.A., Blow, F.C., Cunningham, R.M. (2010). Effects of a brief intervention for reducing violence and alcohol misuse among adolescents: A randomized controlled trial. *Journal of the American Medical Association*. 304(5), 527-535. [PMID: 20682932]
51. Resko, S.M., Walton, M.A., Bingham, C.R., Shope, J.T., Zimmerman, M.A., Chermack, S.T., Blow, F.C., Cunningham, R.M. (2010). Alcohol availability and violence among inner-city adolescents: A multi-level analysis of the role of alcohol outlet density. *American Journal of Community Psychology*, 46(3-4), 253-262. [PMID: 20857328]

52. Hurd, N.M., Zimmerman, M.A. (2010). Natural mentoring relationships among adolescent mothers: A study of resilience. *Journal of Research on Adolescence*, 20(3), 789-809. [PMC2951606]
53. Stoddard, S.A., Zimmerman, M.A., Bauermeister, J.A. (2011). Thinking about the future as a way to succeed in the present: A longitudinal study of future orientation and violent behaviors among African American youth. *American Journal of Community Psychology*. 48(3-4), 238-246. doi: 10.1007/s10464-010-9383-0. [PMC3107351]
54. Elkington, K.S., Bauermeister, J.A., Zimmerman, M.A. (2010). Do parents and peers matter? A prospective socio-ecological examination of substance use and sexual risk among African American youth. *Journal of Adolescence*. Dec 13. [PMC3123662]
55. Morrel-Samuels, P., Zimmerman, M.A. (2010). Research methodology: An innovative approach to a venerable course. *Clinical and Translational Science*, 3(6), 309-311. doi: 10.1111/j.1752-8062.2010.00239.x. [PMID: 21167007]
56. Johns, M.M., Bauermeister, J.A., Zimmerman, M.A. (2010). Individual and neighborhood correlates of HIV testing among African American youth transitioning from adolescence into young adulthood. *AIDS Education and Prevention*, 22(6), 509-522. [PMC3051374]
57. Zimmerman, M.A., Stewart, S., Morrel-Samuels, S., Franzen, S., Reischl, T. (2011). Youth empowerment solutions for peaceful communities: Combining theory and practice in a community-level violence prevention curriculum. *Health Promotion Practice*, 12(3), 425-439. [PMID: 21059871]
58. Bauermeister, J.A., Zimmerman, M.A., Caldwell, C.H. (2011). Neighborhood disadvantage and changes in condom use among African American adolescents. *Journal of Urban Health*, 88(1), 66-83. [PMC3042087]
59. Walton, M.A., Resko, S., Whiteside, L., Chermack, S.T., Zimmerman, M., Cunningham, R.M. (2011). Sexual risk behaviors among teens at an urban emergency department: Relationships with violent behaviors and substance use. *Journal of Adolescent Health*, 48(3), 303-305. [PMC3052935]
60. Hurd, N.M., Zimmerman, M.A., Reischl, T.M. (2011). Role model behavior and youth violence: A study of positive and negative effects. *Journal of Early Adolescence*, 31(Apr), 323-354. (doi: 10.1177/0272431610363160).
61. Barnett, T.E., Vansadia, P., Caldwell, C.H., Rowley, S., Zimmerman, M.A. (2011). A longitudinal study of household change on African American adolescents. *Journal of Community Psychology*, 39(3), 303-315 (doi: 10.1002/jcop.20434).
62. Skolarus, L.E., Zimmerman, M.A., Murphy, J., Brown, D.L., Kerber, K.A., Bailey, S., Fowlkes, S., Morgenstern, L.B. (2011). Community-based participatory research: A new approach to engaging community members to rapidly call 911 for Stroke. *Stroke*, 42(7), 1862-1866. [PMID: 21617148]
63. Stoddard, S.A., Zimmerman, M.A. (2011). Association of interpersonal violence with self-reported history of head injury. *Pediatrics*, 127(6), 1074-1079. [PMC3103270]
64. Butler-Barnes, S.T., Chavous, T.M., Zimmerman, M.A. (2011). Exposure to violence and achievement motivation beliefs: Moderating roles of cultural-ecological factors. *Race and Social Problems*, 3(2), 75-91. [DOI 10.1007/s12552-011-9044-4]

65. Brenner, A.B., Bauermeister, J.A., Zimmerman, M.A. (2011). Neighborhood variation in adolescent alcohol use: Examination of socio-ecological and social disorganization theories. *Journal of Studies on Alcohol and Drugs*. 72(4), 651-659. [PMC3125888]
66. Bauermeister, J.A., Johns, M.M., Pingel, E., Eisenberg, A., Santana, M.L., Zimmerman, M. (2011). Measuring love: Sexual minority male youths' ideal romantic characteristics. *Journal of LGBT Issues in Counseling*, 5(2), 102-121. [PMC3121169]
67. Ranney, M.L., Whiteside, L., Walton, M.A., Chermack, S.T., Zimmerman, M.A., Cunningham, R.M. (In Press). Gender differences in characteristics of adolescents presenting to the ED with acute assault-related injury. *Academic Emergency Medicine*, 18(10), 1027-35.. [PMC3201754]
68. Bauermeister, J.A., Pingel, E., Zimmerman, M.A., Couper, M., Carballo-Diéguez, A., Strecher, V. (In Press). Data quality in web-based HIV/AIDS research: Handling invalid and suspicious data. *Field Methods*.
69. Livingood, W.C., Allegrante, J.P., Airhihenbuwa, C.O., Clark, N.M., Windsor, R.C., Zimmerman, M.A., Green, L.W. (In Press). Applied social and behavioral science to address complex health problems. *American Journal of Preventive Medicine*.41(5), 525-31. [PMID: 22011425]
70. Reischl, TM, Zimmerman, MA, Morrel-Samuels, S, Franzen, SP, Faulk, M., Eisman, AB, Roberts, E. (2011). Youth empowerment solutions for violence prevention. *Adolescent Medicine: State of the Art Reviews*.22(3), 581-600. [PMID: 22423465]
71. Choe, D. E., Zimmerman, M. A., & Devnarain, B. (2012). Youth violence in South Africa: Exposure, attitudes, and resilience in Zulu adolescents. *Violence and Victims*, 27(2), 166-181.
72. Miller, A.L., Krusky, A., Franzen, S., Cochran, S., & Zimmerman, M. (In press). Partnering to translate evidence-based practices to community settings: Bridging the discovery-delivery gap. *Health Promotion Practice*.
73. Stoddard, S.A., Zimmerman, M.A., & Bauermeister, J.A. (In Press). A Longitudinal Analysis of Cumulative Risks, Cumulative Promotive Factors, and Adolescent Violent Behavior. *Journal of Research on Adolescence*.
74. Hurd, N. M., Stoddard, S. A., & Zimmerman, M. A. (In Press). Neighborhoods, Social Support, and African American Adolescents Mental Health Outcomes: A Multilevel Path Analysis. *Child Development*
75. Hurd, N. M., Sanchez, B., & Zimmerman, M. A., & Caldwell, C. H. (In Press). Natural mentors, racial identity, and educational attainment among African American adolescents: Exploring pathways to success. *Child Development*.
76. Hurd, N. M., Sellers, R.M., Cogburn, C.D., Butler-Barnes, S.T., & Zimmerman, M. A. (In Press). Racial identity and depressive symptoms among Black emerging adults: The moderating effects of neighborhood racial composition. *Developmental Psychology*.
77. Bauermeister, J.A., Zimmerman, M.A., Johns, M.M., Glowacki, P., Stoddard, S. & Volz, E. (In Press). Innovative recruitment using online networks: Lessons from the development and implementation of a web-based Respondent Driven Sampling (WebRDS) strategy. *Journal of Studies on Alcohol and Drugs*

78. Gordon-Messer, D., Bauermeister, J.A., Grodzinski, A., & Zimmerman, M.A. (In Press). Sexting among young adults. *Journal of Adolescent Health*.
79. Estrada-Martinez, L.M., Caldwell, C.H., Bauermeister, J.A., & Zimmerman, M.A. (In Press). Stressors in Multiple Life-Domains and the Risk for Externalizing and Internalizing Behaviors Among African Americans During Emerging Adulthood. *Journal of Youth and Adolescence*. [DOI 10.1007/s10964-012-9778-3]
80. Stoddard, S.A., Whiteside, L., Zimmerman, M.A., Cunningham, R.M., Chermak, S.T., Walton, M.A. (In Press). The Relationship between Cumulative Risk and Promotive Factors and Violent Behavior among Urban Adolescents. *American Journal of Community Psychology*.
81. Stoddard, S.A., Bauermeister, J.A., Gordon-Messer, D., Johns, M., & Zimmerman, M.A. (2012). Permissive norms and young adults' alcohol and marijuana use: The role of online communities. *Journal of Studies on Alcohol and Drugs*, 73(6), 968-975.
82. Brenner, A.B., Zimmerman, M.A., Bauermeister, J.A., & Caldwell, C.H. (2012). The physiological expression of living in disadvantaged neighborhoods for youth. *Journal of Youth and Adolescence*. DOI 10.1007/s10964-012-9838-8.
83. Johns, M.M., Zimmerman, M.A., & Bauermeister, J.A. (In Press). Sexual attraction, sexual identity, and psychosocial well-being in a national sample of young women during emerging adulthood. *Journal of Youth & Adolescence*.
84. Goldstein, A.L., Faulkner, B. Cunningham, R.M., Zimmerman, M.A., Chermack, S., & Walton, M. A. (In Press). A latent class analysis of adolescent gambling: Application of resilience theory. *International Journal of Mental Health and Addiction*.
85. Whiteside, L.K., Walton, M., Ranney, M., Zimmerman, M.A., Chermack, S., Cunningham, R.M. (In Press). The Overlap of Youth Violence Among Aggressive Adolescents with Past Year Alcohol Use, A Latent Class Analysis: Aggression and Victimization in Peer and Dating Violence in an Inner City Emergency Department Sample. *Journal of Studies on Alcohol and Drugs*.
86. Epstein-Ngo, Q.M., Cunningham, R.M., Whiteside, L.K., Chermack, S.T., Booth, B.M., Zimmerman, M.A., & Walton, M.A. (In Press). A Daily Calendar Analysis of Substance Use and Dating Violence among High Risk Urban Youth. *Drug and Alcohol Dependence*.
87. Cook, S., Bauermeister, J.A., Gordon-Messer, D., & Zimmerman, M.A. (In Press). Online network influences on emerging adults' alcohol and drug use. *Journal of Youth and Adolescence*.

EDITED BOOKS AND BOOK CHAPTERS

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EDITORIAL ACTIVITIES

Member, Editorial Board for *Health Promotion Practice*, 2004-2012.

Member, Editorial Board for *Health Education Research*, 1998-present.

Member, Editorial Board for *Psyche* (Chilean psychology journal), 2009-present.

Editor, *Health Education & Behavior*, 1997-2010.

Editor, *Youth & Society*, 2011-present.

GRANT REVIEW ACTIVITIES

NIH Scientific Review Committee, Ad hoc, Community Influences on Health Behavior Study Section, 2011

NIH Scientific Review Committee, Member, Community Influences on Health Behavior Study
Section, 2013-present

PROFESSIONAL AFFILIATIONS

- American Public Health Association
- Society for Public Health Education
- Society for Community Research and Action
- Society for Research on Adolescence

ZIMMERMAN EXHIBIT 2

Expert Report
Submitted by Marc A. Zimmerman, Ph.D.

The basis of this report of the prevalence of sexting involving visual depictions among young adults (18-24 years old) comes from a national study reported by Gordon-Messer, D., Bauermeister, J. A., Grodzinski, A., & Zimmerman, M. A. (2012). The sampling strategy for this study involved a Respondent Driven Sampling (RDS). This procedure requires an initial sample of participants who then recommend others to complete a web-based questionnaire. The subsequent *referral chains* all extend from an initial individual who begins the chain (seeds). In our study the initial seed recommended 5 additional participants. Each person in the chain received a VISA e-gift card for \$20 for completing the questionnaire and a \$10 e-gift card for each referral they made who also completed the questionnaire. This continued until we stopped the chain process where the final group of participants only received e-gift cards for completing the questionnaire. The seeds were recruited through a Facebook advertising process that also took into consideration where they lived (region of the U.S.) and their self-defined ethnicity. We identified, a priori based on U.S. demographic data, how many seeds to recruit from each area based on region total population and race defined subgroup populations to help insure a representative sample.

Using procedures defined by Volz & Heckathorn (2008), we developed statistical weighting procedures to adjust for the clustering that resulted from the network referral process (to avoid oversampling from one seed versus another). This is necessary because participants recruited through the RDS are linked by their referral chains (those within an individual seed) and therefore have a commonality that needs to be accounted for in subsequent estimates (i.e., their responses may be correlated because they all come from the same seed). We weighted the data based on the following criteria that we collected from them: a) the number of young adults they estimate to know; b) the proportion of young adults they interact with online; and the racial homogeneity of their social networks.

Sample population

- 18-24 years old, live in the United States, have access to the Internet.
- N = 827 weighted individuals (from an original sample of 2,447)
- 52% Male
- Race/Ethnicity: 70% White, 12% Asian/Pacific, 9% Hispanic/Latino, 5% Black/African American

Defining Sexting

We defined sexting as sexually suggestive photos or messages through cell phones or other media. We measured it by asking participants if they used their cell phone to send a sexually suggestive nude or nearly nude photo of themselves to someone else or if they ever received such a text from someone they know on their cell phone. This is the same measured used by Lenhart (2010) and others.

Findings

Sexting Prevalence:

- Ever sent a sext: 30%
- Ever received a sext: 41%

Among those who reported sexting:

- Receivers Only: 13%
- Senders Only: 2%
- 2-way sexters: 28%

We believe our results are nationally representative of young adults who use the internet for several reasons. **First**, colleagues and I (Bauermeister, et al., 2012) examined how our data on last 30-day substance use (e.g., tobacco, alcohol, marijuana, cocaine, Ecstasy/MDMA, hallucinogens) matched up with use reported in other national studies that used different sampling strategies. We found comparable prevalence estimates for everything except cigarette use (our study participants reported more cigarette use). **Second**, our weighting system removed recruitment bias by adjusting for the RDS strategy we used. **Third**, our results are similar to other studies (Benotsch et al., 2012; National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Benotsch et al. (2012) conducted an online study with 763 young adults. Their sample was recruited from a large public university and included 66% female and 53% white participants with an average age of 19 years old. Forty-Four percent (44.4%) reported sexting. The National Campaign to Prevent Teen and Unplanned Pregnancy was also an online survey. This study included a sample of 627 young adults (20-26 years old). Overall, 33% reported sending or posting a sext. Unfortunately, few studies of sexting among young adults or older populations have been reported to date. Most studies on sexting prevalence and consequences, although also not many, have focused on adolescent (under 18 years old) populations (Dake et al., 2012; Mitchell et al., 2012; Rice et al., 2012; Temple et al., 2012).

According to the U.S. Census, the 18-24 year old population comprises 30,672,088. Extrapolating our prevalence rate of 30% would suggest 9,201,626 young adults have ever sent a sext. Similarly, extrapolation of our prevalence of 41% who ever received a sext would result in 12,575,560 18-24 year olds. Although such extrapolation is sometimes tenuous because a specific estimate based on one sample can capitalize on the error present in any study, the number of young adults involved in this behavior in some ways is quite significant. If, for example, our estimates were off by as much as 50%, a very unlikely scenario, the prevalence for sending would involve 4.6 million young adults and receiving a text would involve 6.3 million young adults.

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ZIMMERMAN EXHIBIT 3



Original article

Sexting Among Young Adults

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ABSTRACT

Purpose: Sexting has stirred debate over its legality and safety, but few researchers have documented the relationship between sexting and health. We describe the sexting behavior of young adults in the United States, and examine its association with sexual behavior and psychological well-being.

Methods: Using an adapted Web version of respondent-driven sampling, we recruited a sample of U.S. young adults (aged 18–24 years, N = 3,447). We examined participant sexting behavior using four categories of sexting: (1) nonsexters, (2) receivers, (3) senders, and (4) two-way sexters. We then assessed the relationships between sexting categories and sociodemographic characteristics, sexual behavior, and psychological well-being.

Results: More than half (57%) of the respondents were nonsexters, 28.2% were two-way sexters, 12.6% were receivers, and 2% were senders. Male respondents were more likely to be receivers than their female counterparts. Sexually active respondents were more likely to be two-way sexters than non-sexually active ones. Among participants who were sexually active in the past 30 days, we found no differences across sexting groups in the number of sexual partners or the number of unprotected sex partners in the past 30 days. We also found no relationship between sexting and psychological well-being.

Conclusions: Our results suggest that sexting is not related to sexual risk behavior or psychological well-being. We discuss the findings of this study and propose directions for further research on sexting.

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IMPLICATIONS AND CONTRIBUTION

We investigated sexting behavior among young adults in the United States using four categories: nonsexters, receivers, senders, and two-way sexters. Our findings provide evidence that sexting is prevalent among young adults, but does not appear to be related to sexual risk or psychological well-being.

Sexting, which describes sharing sexually suggestive photos or messages through cell phones and other mobile media [1], is rapidly becoming part of the dating process [2]. Recently, this behavior has stirred substantial concern over its legality and safety [3,4]. Although existing surveys document the prevalence among young adults (YAs) and demographic characteristics associated with sexting, there is little systematic research on the

relationship between sexting and health behaviors commonly assumed to be linked to sexting (e.g., mental health, sexual behaviors). It is critical to understand this relationship to determine whether and how public health resources should be devoted to sexting.

Since 2009, cross-sectional studies have examined the prevalence of sexting behavior among teens and YAs [2,5–7]. Most recently, Lenhart [7] found that 13% of those aged 18 to 29 years had sent sexually suggestive nude or seminude images via cell phones and 31% had received these messages. Researchers also found that men were more likely to have received sexts (21%) than women (11%), and African American and Hispanic adults had higher odds of receiving sexts (27% and 22%, respectively)

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than whites (12%). Frequent users of cell phones and social networking technology and single adults reported sexting more than low-technology users or married adults [7].

In an MTV-sponsored study, researchers found that 45% of youth (aged 14–24 years) who reported having sex in the past week also reported sending at least one sext [5]. They also found that sexually active youth were twice as likely to share naked photos compared with their non-sexually active peers [5]. Although informative, these findings do not elucidate whether sexting is related to self-reported sexual risk behaviors. Researchers have proposed three perspectives regarding the relationship between sexting and sexual behavior: (1) sexting may lead to risky sexual behaviors such as early sexual initiation and less contraceptive use [8], (2) sexting may be a safer sex behavior if it is used in lieu of physical contact [2], or (3) sexting may reflect a new medium for the long-standing practice of photo sharing in romantic and sexual relationships and have no association with safer or riskier sex behaviors [1]. It is vital to understand how sexting is related to sexual behaviors, as it could be promoted as a safer sex behavior or become a focus of intervention to prevent risky sexual behavior.

Media reports and scholars have also proposed a relationship between sexting and psychological well-being [9–11]. Some researchers suggest that mental health is connected to youth's motivation to sext. People with social anxiety may prefer texting to voice calls as a medium for intimate contact, and may also prefer sexting as a medium for sexual contact [4,12]. Other researchers and the media raise concern over the psychological consequences of sexting. The spread of sext messages beyond the original recipient and pressure to sext are both common occurrences [5,6] and may be related to subsequent psychological distress [3,13]. In addition, a number of dating violence education programs have included unwanted text and sext messages in their definitions of dating violence [12,13]. To date, researchers have not tested the relationship between sexting and symptoms of psychological well-being directly. The absence of such data is a concerning gap in our understanding, given that if sexting is related to adverse mental health, intervention is critical to prevent or mitigate negative outcomes.

Study Goals and Objectives

Our study has three goals. First, we describe the prevalence of sexting in a large national sample of 18–24-year-old YAs in the United States. We break sexting into four categories: (1) nonsexters (neither sent nor received a sext), (2) senders (sent but never received a sext), (3) receivers (received but never sent a sext), and (4) two-way sexters (both sent and received a sext). Second, we examine whether participants who engage in different sexting behaviors differ in their sociodemographic characteristics. Finally, we test the association between YAs' sexting behaviors, sexual behavior, and psychological well-being. We discuss the implications of sexting for YAs and suggest directions for both research and practice.

Methods

Sampling

Participants were recruited using a Web-based respondent-driven sampling (RDS) strategy [14]. To be eligible for the study, respondents had to be aged between 18 and 24 years, live in the

United States, and have access to the Internet. The first wave of participants (seeds) was recruited through an online Facebook advertisement. We selected 22 seeds based on race/ethnicity and region of the United States to ensure that initial networks were diverse and not concentrated in a single region. The remainder of the sample was recruited through referral chains. The full sample ($N = 3,447$) included 52% male respondents, with a racial breakdown of 70% white, 12% Asian/Pacific Islander, 9% Hispanic/Latino, and 5% black/African American. The majority of participants identified as heterosexual (93.9%). The average age of participants was 20 (standard deviation = 1.77) years, and more than half of the participants had completed some college education or more (66%). On average, the respondents spent between 3 and 4 hours per day on the Internet, outside of school and work, and communicated with 47% of their contacts via phone or text message.

Procedures

Each prospective participant logged into the survey portal using a unique identifying number and completed a short eligibility screener. Eligible participants consented to the study and completed the survey. On average, the questionnaire took 37 minutes to complete. YAs received a VISA e-gift card for their participation (\$20) and an additional \$10 each for up to five additional YAs who they referred to the study and who completed the questionnaire. Data were protected with a 128-bit SSL encryption and kept on a secure server protected by firewall at the University of Michigan. Data quality checks were performed to circumvent duplicate and fraudulent entries [14,15]. The study was approved by the institutional review board of the University of Michigan.

Measures

Sexting. Respondents answered two questions regarding their lifetime sexting behavior. Using definitions provided by the Pew Internet and American Life Project [7], we asked participants whether they had ever sexted (i.e., sent a sexually suggestive nude or nearly nude photo or video of themselves to someone else) using their cell phones. Then, we asked whether they had ever received a sext (i.e., a sexually suggestive nude or nearly nude photo or video of someone else they know) on their cell phones. We created a lifetime sexting behavior status variable using four categories: (1) nonsexters, (2) senders, (3) receivers, and (4) two-way sexters.

Sexual behavior. Sexual (genital) experience was defined as oral sex: "any mouth to genital contact," vaginal sex: "male putting his penis in a female's vagina or a female putting a finger, dildo, or other object into another female's vagina," and anal sex: "male putting his penis into someone else's anus or female putting a finger, dildo, or other object into another female's anus." Two questions asked participants whether they "ever had sexual (genital) experiences with a male" and whether they "ever had sexual (genital) experiences with a female." Participants who answered yes to any of the questions were coded as "sexually active," whereas those who answered no to both questions were coded as "not sexually active." Sexually active youth reported the number of male and female partners they had in the past 30 days. We calculated the total number of sexual partners in past 30 days by adding the reported number for male and female partners. To distinguish lifetime sexual behavior from recent sexual behavior, we created a dichotomous variable (0 = no, 1 = yes) that identi-

fied whether respondents had one or more partners in the past 30 days. Participants also reported the number of unprotected sex partners in the past 30 days for vaginal sex and for anal sex. We calculated the proportion of unprotected sex partners by dividing participants' number of unprotected partners for vaginal sex and anal sex, respectively, by their total reported partners in the past 30 days. We used these proportions as indicators of sexual risk behavior.

Depression. Depressive symptoms in the past week were assessed using an 11-item short form of the Center for Epidemiologic Studies Depression scale [16,17]. We selected this short form to limit the number of survey items and reduce participant burden. Items (e.g., "I felt that everything I did was an effort") were scored on a four-point scale: 1 = rarely or none of the time (<1 day), 4 = most or all the time (5–7 days). Mean depression score was calculated by reverse scoring positively worded items (e.g., "I felt hopeful about the future") and creating a mean composite score. High scores indicated high depression symptoms in the past week ($\alpha = .82$).

Anxiety. Anxiety symptoms were measured using the anxiety subscale of the Brief Symptom Inventory [18]. Participants reported how often in the past week they had experienced signs of anxiety, such as "nervousness or shakiness inside," using a 5-point scale (1 = never, 5 = very often). We computed a mean total anxiety score, where higher scores indicated higher anxiety symptoms ($\alpha = .90$).

Self-esteem. We assessed self-esteem using the 10-item Rosenberg Self-Esteem Scale [19]. Participants responded to items (e.g., "I feel I have a number of good qualities") on a four-point scale (1 = strongly disagree, 4 = strongly agree). We created a mean composite self-esteem score. Higher scores indicated higher self-esteem ($\alpha = .87$).

Sociodemographic characteristics. Participants reported their biological sex, highest education level, and whether they were Hispanic/Latino, followed by their race/ethnicity. Participants also reported their sexual orientation (straight/heterosexual, gay/lesbian/homosexual, bisexual or other). We recoded sexual orientation into two categories: heterosexual and homo-/bisexual (other responses were excluded from the analysis, $n = 5$). We calculated participant age by subtracting their month and year of birth from the date of study participation.

Internet use. Participants reported, on average, how many hours per day they spent on the Internet for personal use (1 = no hours to 8 = ≥ 16 hours).

Phone/texting communication. We asked participants how many YAs they had contact with in the past 3 months, and of those who they were in contact with, how many they usually communicated with via phone or text. We divided the number of phone/text contacts by the total number of contacts in the past 3 months to compute a proportion of contacts phoned/texted.

Data analytical approach

Participants recruited through RDS are linked by their recruitment chains and are therefore correlated. We computed a statistical weight (RDS2) to correct for clustering that resulted from

the network-referral procedures [20]. Using RDS2, the data are weighted by participants' network characteristics, such as the number of YAs whom the participants know, the proportion of youth with whom they interact with online, and racial homogeneity of their networks. After adjusting for these network-level intercorrelations with the RDS2 weights, our final analytical sample comprised 827 individuals.

We performed descriptive statistics for study variables on both the full ($n = 3,447$) and the weighted ($n = 827$) samples and performed an attrition analysis for those with missing sexting data. All variables were normally distributed, except for the number of partners in the past 30 days (skewness = 15.6); this variable was log transformed to correct for positive skew. In subsequent analyses, we weighted the RDS2 weight [20]. Data were analyzed in three steps. First, we used cross tabs to examine the intersection between sending and receiving a sext message, and to create sexting status categories. Second, we analyzed bivariate relationships between sexting status and variables of interest. For continuous variables, we used analysis of variance, with post hoc Scheffe tests to compare mean scores across sexting groups. We tested the association between sexting and categorical variables using χ^2 tests and odds ratios (ORs). Third, we performed multinomial regression analysis that tested the relationship between sexting status and each sexual health outcome, depression, anxiety, and self-esteem, after accounting for all demographic variables, Internet use, and proportion of contacts phoned/texted. Multivariate and bivariate analysis results were the same for all predictors. For brevity, we report only bivariate and statistically significant results ($p < .05$).

Results

Attrition analyses

Of the 827 respondents in the weighted sample, 760 (91.7%) answered both questions on sexting, whereas 67 (8.3%) had missing data for one or both of the sexting items. A greater percentage of male respondents (10.8%) had missing data when compared with their female counterparts (5.7%, $\chi^2_{(1)} = 6.9$), and more non-sexually active participants (15%) had missing data than their sexually active counterparts (5.3%, $\chi^2_{(1)} = 21.6$). Additionally, those with missing data had fewer sexual partners in the past 30 days (mean difference in log number of partners = .15, $t = 3.15$), a lower proportion of unprotected vaginal sex partners (mean difference = .076, $t = 3.26$), and lower self-esteem (mean difference = .17, $t = 2.32$) when compared with those who responded to both sexting questions. We found no differences by race, sexual orientation, age, education level, daily hours spent on the Internet, proportion of contacts phoned/texted, anxiety, or depression. Only participants with full sexting data available were included in analyses; demographic characteristics are displayed in Table 1.

Sexting behavior and demographics

More than half (57%) of the respondents were nonsexters, 28.2% were two-way sexters, 12.6% were receivers, and 2% were senders (Table 2). Owing to small cell size ($n = 15$), we excluded senders from subsequent analyses.

Results from bivariate analyses are presented in Table 3. Sexting behavior differed by sex ($\chi^2_{(2)} = 11.3$, $p < .05$) and race/ethnicity ($\chi^2_{(8)} = 31.4$, $p < .001$). Male respondents were

Table 1
Descriptives for participants included in analysis (n = 760)

Variable	Mean (standard deviation)/n (%)	Range
Sex		
Male	373 (49.6%)	
Female	379 (50.4%)	
Race		
Black/African American	38 (5.0%)	
White	527 (70.4%)	
Asian/Pacific Islander	84 (11.2%)	
Hispanic/Latino	66 (8.9%)	
Other	34 (4.5%)	
Sexual orientation		
Heterosexual	708 (93.8%)	
Homo-/bisexual	47 (6.2%)	
Age	20.8 (1.77)	
Education	3.57 (1.28)	0–6
Daily Internet use	3.88 (1.27)	1–8
Proportion of contacts phoned/texted	.50 (.32)	0–1
Sexually active		
Yes	520 (70.2%)	
No	221 (29.8%)	
Sexually active (past 30 days)		
Yes	349 (52.9%)	
No	392 (47.1%)	
Natural Log of partners (past 30 days) ^a	.68 (2.11)	
Proportion of unprotected vaginal sex partners (past 30 days) ^a	.12 (.24)	0–1
Proportion of unprotected anal sex partners (past 30 days) ^a	.30 (.14)	0–1
Depression	1.93 (.53)	1–4
Anxiety	1.90 (.83)	1–5
Self-esteem	3.05 (.55)	1–5
Sent a sext		
Yes	229 (30.1%)	
No	531 (69.9%)	
Received a sext		
Yes	310 (40.8%)	
No	450 (59.2%)	

^a Among those sexually active in the past 30 days.

more likely to be receivers than their female counterparts (OR = 2.2, $p = .001$), but we found no differences by sex for nonsexters or for two-way sexters. A greater number of Asian/Pacific Islanders reported never sexting compared with other race/ethnicities. Compared with whites, Asian/Pacific Islanders showed five times greater odds of being a nonsexter than a two-way sexter (OR = 5.4, $p < .001$). We found no differences in sexting behavior by age, sexual orientation, education, daily hours spent on the Internet, or proportion of contacts phoned/texted.

Sexing and sexual behavior

We found an association between lifetime sexual activity and sexting behavior ($\chi^2_{(2)} = 105$, $p < .001$). Receivers were three times more likely to be sexually active (OR = 3.2, $p < .001$) compared with nonsexters. Two-way sexters were 14 times more likely to report lifetime sexual activity (OR = 14.3, $p < .001$) compared with non-sexters. Similarly, recent sexual activity, in the past 30 days, was also associated with sexting behavior ($\chi^2_{(2)} = 76$, $p < .001$). When we assessed only those respondents who reported being sexually active in the past 30 days, we found no association between sexting behavior and number of part-

ners, proportion of unprotected vaginal sex, or proportion of unprotected anal sex partners.

Sexing behavior and psychological well-being

We found no differences across sexting groups in depression ($F_{2,714} = 1.08$, $p = .34$), anxiety ($F_{2,714} = .141$, $p = .87$), or self-esteem ($F_{2,713} = .988$, $p = .37$).

Discussion

We examined YAs' sexting behavior and its association with health. Our results indicate that sexting is a prevalent behavior among YAs, and show slightly higher rates of sending and receiving sexts than other recent findings [7]. We found that 30% of the YAs in our sample had sent a sext and 41% had received a sext, compared with 13% sending and 31% receiving sexts in the Lenhart study [7]. These differences may be attributable to age differences in the samples. Lenhart's findings focused on individuals aged 18–29 years, whereas our sample focused on those aged 18–24 years. It is also possible that sexting is increasing owing to technological advances. Sending photos and videos via cell phones increased from 2010 to 2011 (36%–54%) [21], and it is plausible that sexting is following that trend. Longitudinal data are needed for us to know whether sexting is increasing among YAs. Our results also suggest that sexting is most often a reciprocal behavior. Among those participants who had ever sent or received a sext, 66% reported both sending and receiving sexts. Given findings that most young men and women report sharing sexts within a dating relationship [6,22], it is likely that our findings reflect sexting between romantic partners.

Similar to Lenhart [7], we found that young men are more likely than young women to receive a sext without sending one. These results could be attributed in part to young men receiving photos that were originally intended for someone else. Researchers have found that 40% of men (vs. 24% of women) reported receiving second-hand sext content, and that 14% of men had received a mass sext, whereas only 9% of women reported this [5,6]. When men receive forwarded sexts, they may not be a part of a reciprocal sexting relationship and therefore do not send contents in return. This finding may also reflect sexual objectification [23] being enacted through technology. Qualitative research may be warranted to obtain more in-depth information about this pattern of sexting behavior.

Our findings on the relationship between sexting and sexual behavior support the perspective that sexting is a part of YAs' sexual relationships, but is not necessarily correlated with riskier or safer behavior. Although some teens report sexting as a substitute for physical contact [2], this use for sexting may not be common among YAs. Consistent with other studies [5], we found that YAs who are sexually active are more likely to sext than those who are not sexually active. Two explanations for this

Table 2
Count and percentage of "ever sent a sext" crossed with "ever received a sext"

Sent a sext	Received a sext		
	No (%)	Yes (%)	Total (%)
No	435 (57.2)	96 (12.6)	531 (69.9)
Yes	15 (2.0)	214 (28.2)	229 (30.1)
Total	450 (59.2)	310 (40.8)	760 (100.0)

Table 3

Sexing status by demographics, sexual behavior, and psychological well-being

Variable	Sexing status M (standard deviation)/n (%)			Tests of association F/ χ^2 (df)
	Never	Receive only	Both	
Sex				11.33 (2) ^a
Male	205 (55.4%)	63 (17.0%)	102 (27.6%)	
Female	224 (61.0%)	32 (8.7%)	111 (30.2%)	
Race				31.41 (8) ^a
Black/African American	18 (50.0%)	4 (11.1%)	14 (38.9%)	
White	290 (56.2%)	70 (13.6%)	156 (30.2%)	
Asian/Pacific Islander	71 (85.5%)	5 (6.0%)	7 (8.4%)	
Hispanic/Latino	31 (47.7%)	10 (15.4%)	24 (36.9%)	
Other	18 (56.3%)	4 (12.5%)	10 (31.3%)	
Sexual orientation				2.64 (2)
Heterosexual	409 (58.9%)	91 (13.1%)	194 (28.0%)	
Homo-/bisexual	23 (50.0%)	5 (10.9%)	18 (39.1%)	
Age	20.8 (1.77)	20.4 (1.71)	20.8 (1.80)	1.97 (2, 739)
Education	3.6 (1.32)	3.40 (1.28)	3.63 (1.17)	1.06 (2, 741)
Daily Internet use	3.9 (1.25)	3.95 (1.30)	3.91 (1.27)	.34 (2, 741)
Proportion of contacts phoned/texted	.48 (.33)	.52 (.32)	.52 (.32)	1.92 (2, 742)
Sexually active				104.78 (2) ^a
Yes	46.5%	14.8%	38.8%	
No	85.9%	8.6%	5.5%	
Sexually active (past 30 days)				76.28 (2) ^a
Yes	42.4%	14.4%	43.2%	
No	72.6%	11.4%	16.0%	
Natural Log partners (past 30 days) ^b	.76 (.33)	.81 (.28)	.81 (.34)	.74 (2, 338)
Proportion of unprotected vaginal sex partners (past 30 days) ^b	.24 (.29)	.25 (.30)	.3 (.31)	2.48 (2, 305)
Proportion of unprotected anal sex partners (past 30 days) ^b	.04 (.17)	.06 (.17)	.1 (.23)	2.47 (2, 336)
Depression	1.9 (.53)	1.9 (.54)	2.0 (.55)	1.08 (2, 714)
Anxiety	1.9 (.81)	1.9 (.86)	1.9 (.83)	.14 (2, 714)
Self-esteem	3.1 (.55)	3.1 (.55)	3.1 (.55)	.99 (2, 713)

^a Significant at $\alpha = .05$.^b Among those sexually active in the past 30 days.

finding are possible: (1) when sexting is used to flirt with potential partners, it may precede or initiate sexual relationships [6], or (2) sexually active YAs may engage in a range of sexual behavior, including sexting. Additional research is needed on sexting and sexual relationships, as our cross-sectional data do not address this debate. Although sexting is correlated with lifetime and 30-day sexual activity, our results suggest that this does not necessarily translate into risky behavior. Although some researchers argue that exposure to sexual images in traditional media (e.g., television, movies, and magazines) and new media may lead to sexual risk [8], we found that sexting was not associated with more sexual partners or a higher proportion of unprotected sex partners for either vaginal sex or anal sex in the past 30 days.

Researchers have proposed that mental health issues may be related to sexting [4,9,12,13]. Our findings suggest that sexting is not associated with depression, anxiety, or self-esteem. In our sample, YAs who sexted and those who did not sext reported similar outcomes for these mental health indicators. However, it is possible that sexting could be problematic under some conditions. Scholars argue that the lack of control after a sext is sent or pressure by sexual partners to sext may contribute to psychological distress and mental health concerns [2,3,5]. Media reports have noted that when a sext spreads to an unintended audience, it may create psychological distress and suicide intentions [10,11]. Given that our data do not address these specific situations, future research exploring pressure to sext or viral sexts will help identify when sexting may result in deleterious mental health outcomes.

Although our study is one of the first to examine the effects of sexting on YAs' well-being, several limitations of our study

should be noted. First, this study was cross sectional and does not establish causal relationships between sexting and either sexual health or mental health. Nevertheless, our findings suggest that longitudinal research is warranted. Second, owing to our sampling methods, some racial and educational groups were under-represented, and our results may not be generalizable to the YA population as a whole. Yet very few national studies of sexting and health correlates have been conducted, and our findings offer a more in-depth examination of this behavior than other studies on a national scale. Third, we were not able to include senders in our analysis. Although we were unable to examine whether senders were different from their counterparts, our results add to our understanding of this behavior by revealing that sending a sext without receiving in return may not be a common practice for YAs.

Our study introduces sexting behavior categories (nonsexters, receivers, senders and two-way sexters) as a way to conceptualize sexting. We provide an initial effort to examine sexting and its relationship with sexual risk behavior and psychological well-being, but further research is needed to provide a more in-depth understanding of this behavior. Qualitative research that examines relationship contexts and motivation for sexting has been published for the teen population [2] and is also needed for YAs. A richer understanding of whom sexts are sent to, or received from, and why YAs sext may help explain gender differences in sexting and add insight into the relationship between sexting and sexual behavior. We did not find a relationship between sexting and depression, anxiety, or self-esteem, but further research is needed to examine the association between sexting and mental health. As mentioned earlier in the text, pressure to sext and viral sexts may present mental health risks,

but, to date, there are no studies that address these specific situations. Finally, our study included YAs only as young as 18 years of age, and we did not find age effects in any analysis. Nevertheless, individuals in their early and middle adolescence may have different health correlates with sexting because they are in a period of establishing a sexual identity [24]. Research on sexting including younger adolescents would be useful to see whether it influences sexual behaviors during this developmental period. Our results confirm that sexting is a prevalent behavior among YAs; however, we do not have enough information yet to inform health education programs or to determine whether sexting among YAs is a behavior that demands a share of public health's limited intervention resources. Future research in this area is warranted.

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ZIMMERMAN EXHIBIT 4



Original article

Sexting, Substance Use, and Sexual Risk Behavior in Young Adults

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See Related Editorial p. 257

A B S T R A C T

Purpose: Cell phone use has become more widespread over the past decade. Young adults are frequently early adopters of new technologies, including cell phones. Most previous research examining sexting, the act of sending sexually explicit or suggestive images via text message, has focused on the legal or social consequences of this behavior. The current study focused on the public health implications of sexting by examining associations between sexting, substance use, and sexual risk behavior in youth.

Methods: Young adults (N = 763) completed online questionnaires assessing demographics, cell phone use (e.g., texting, sexting), substance use, and sexual risk behaviors.

Results: Sexting was reported by a substantial minority of participants (44%). Compared with their nonsexting counterparts, participants who engaged in sexting were more likely to report recent substance use and high-risk sexual behaviors, including unprotected sex and sex with multiple partners. Of those who engaged in sexting, a considerable percentage (31.8%) reported having sex with a new partner for the first time after sexting with that person. In multivariate analyses, sexting was associated with high-risk sexual behavior, after accounting for demographic factors, total texting behaviors, and substance use.

Conclusions: Results suggest that sexting is robustly associated with high-risk sexual behavior. Many individuals exchange explicit or provocative photos with long-term sexual partners, but at least some participants in this study were incurring new sexual risks after sexting. Additional research is needed to understand the contexts in which sexting occurs, motivations for sexting, and relationship of sexting to risk behavior.

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IMPLICATIONS AND
CONTRIBUTION

The present study found relatively high rates of “sexting” (sending explicit photographs via text message) in young adults. Sexting was robustly associated with substance use and high-risk sexual behavior, including having multiple sexual partners, unprotected sex, and higher rates of sexually transmitted infections.

Cell phone usage has increased dramatically in the United States, with more than 320 million individual subscriber connections as of 2011 [1]. Americans send >2 trillion text messages annually, and almost 30% of U.S. households use cellular telephone connections exclusively [1]. Young adults and older adolescents are especially likely to be cell phone users. Eighty-three percent of 17

year olds own cell phones, and this percentage increases in young adulthood [2,3]. In particular, text-based communication is increasingly popular among youth. More than one-half of cell-owning teenagers text a friend at least daily, and approximately one-third report sending more than 100 text messages per day [4]. Although cell phone usage is popular and has advantages of convenience and enhanced security, there are disadvantages as well, including accidental injuries and deaths associated with distracted driving and interference with classroom-based learning among students [5,6].

Cell phone use has the potential for other negative outcomes. In recent years, a new trend of sexualized text commu-

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nication has emerged—"sexting" is typically defined as the act of sending sexually explicit or suggestive photographs via text message [7–9]. Sexting may result in adverse outcomes for those involved, including embarrassment, mental health problems, public dissemination of sexual photos, and legal consequences if the images are of underage individuals [2,10–12]. Prevalence estimates of sexting vary considerably, depending on the population assessed, the manner in which sexting is defined, and the timing of the survey [10]. In a recent national telephone survey of Internet-using youth (ages 10–17 years), Mitchell et al found that 2.5% of participants reported appearing in or creating sexually provocative images to be sent to others and 7.1% reported that they had received provocative images from others [10]. Older youth were more likely to engage in each behavior. In a sample of Internet-recruited adolescents and young adults, 19% of teenagers (ages 13–19 years) and 32% of young adults (ages 20–26 years) reported sending a nude or seminude picture or video of themselves to someone via text or e-mail [13]. In this same study, 31% of teenagers and 46% of young adults reported receiving a nude or seminude picture or video from someone else. In a second sample of youth (ages 14–24 years), 13% of female participants and 9% of male participants reported sending a nude photo or video of themselves to someone else [14]. The majority of such images appear to be exchanged between individuals who are already in a relationship, but some individuals report sending or receiving a sexual image when one of the parties was interested in initiating a relationship [2,10,15,16].

Most of the limited research on sexting to date examines the social and legal consequences of this behavior [17]. Less research has examined the potential health implications of sexting. Over the past dozen years, there has been increasing documentation of the role technology plays in sexual behavior. In multiple studies with diverse populations, researchers have documented that persons who seek sexual partners via the Internet show a pattern of substantially higher sexual risk behaviors. Persons seeking partners online report a higher number of sexual partners, more unprotected sex acts, higher rates of substance use in conjunction with sexual activity, and more sexually transmitted infections (STIs) [18–24]. Given the rapidly increasing popularity of cell phones, including the use of smart phones as web platforms, there would appear to exist a potential for cell phone technology to also play a role in sexuality, particularly in youth, the group that reports the greatest use of these devices.

There has been limited research examining the relationships between sexting and sexual risk behavior. In one preliminary study of primarily Hispanic young women, Ferguson found that 20% of participants reported engaging in sexting [25]. In this study, sexting was associated with sex without contraception, perceived pleasure of sexual activity, and histrionic personality traits, but it was not associated with the number of sexual partners or unprotected sex with new partners. The author concluded that sexting was unrelated to most sexual risk behaviors. Although a valuable contribution, this study was limited by a relatively small ($N = 207$) and homogeneous (all female participants, 96% Hispanic) sample and a limited assessment of sexual risk behavior. The purpose of the present study was to examine relationships between sexting and a broad array of sexual risk behaviors in a larger more diverse sample of young adults. We hypothesized that sexting

would be reported by a substantial minority of participants and that sexting would be associated with sexual risk behavior. We further hypothesized that sexting would be associated with other risk behaviors, such as substance use.

Methods

A brief survey was administered to students enrolled in undergraduate psychology classes at a large public university in the mid-Atlantic region of the United States. All surveys were completed anonymously online via a password-protected secure survey system. Participants received course credit for participation. The system was set up to award credit automatically while masking participant identities from the researchers. A total of 800 participants completed the survey. Data were collected from September to December 2011. This was one of several studies available for course credit during the fall 2011 semester. In total, 1,545 individuals participated in one or more of these studies. Thus, 800 of the 1,545 (51.8%) individuals who participated in research during the semester participated in this study. Four participants (.5%) were eliminated for random or problematic responding. Because we were specifically interested in the sexting behaviors of young adults, data analyses were restricted to individuals who were 18–25 years of age ($N = 763$), a common age range used for defining "young adults" [26,27]. Participants were told that the survey contained personal questions about the use of cell phones and other technology, substance use, and sexual behavior. All consent procedures were conducted online. All study methods and materials were approved by the Institutional Review Board of Virginia Commonwealth University.

Measures

Participants completed a self-administered anonymous survey that included questions assessing demographic information, cell phone ownership, sexting and other texting behaviors, substance use, and sexual behavior.

Demographics

Participants were asked their gender, age, year in school, race/ethnicity, grade point average, employment status, student status (full or part-time), and whether they were a member of a fraternity or sorority.

Texting and sexting

Participants reported whether they owned a cell phone. Participants were also asked to estimate the number of texts they send or receive in a typical day on a 10-point ordinal scale: 0, 1–15, 16–30, 31–45, 46–60, 61–75, 76–90, 91–105, 106–120, or >120. In addition, participants were asked whether they had ever engaged in sexting, which was defined as "sending or receiving sexually explicit or suggestive photos via text message." Participants were then asked to report the total number of sexual images they had sent and the total number they had received. Finally, participants were asked to indicate the total number of times they had sex with someone for the first time after they had engaged in sexting with that person.

Table 1
Sample demographic characteristics

Characteristic	Means (SD)/Percentages (n)
Age (years)	Mean = 18.9 (SD = 1.35)
Grade point average	Mean = 3.22 (SD = .49)
Gender	
Male	34% (n = 258)
Female	66% (n = 505)
Race/ethnicity	
Caucasian/white	52.9% (n = 404)
African American/black	19.3% (n = 147)
Asian American/Asian	12.3% (n = 94)
Latino/a	5.6% (n = 43)
Native American	.1% (n = 1)
Other/mixed racial or ethnic heritage	9.7% (n = 74)
Year in school	
Freshmen	65% (n = 495)
Sophomore	20% (n = 151)
Junior	10% (n = 80)
Senior	4% (n = 30)
Other	1% (n = 7)
Greek membership	
Member of fraternity/sorority	20% (n = 150)

N = 763.

SD = standard deviation.

Substance use

Participants were asked questions concerning the frequency of use of alcohol, marijuana, ecstasy, cocaine, and “other” recreational drugs in the previous 3 months. This measure is similar to measures used in our previous research [27].

Sexual behavior

Participants reported their total number of male and female sexual partners over the past 3 months, as well as their total number of unprotected vaginal or anal sex acts in the past 3 months. Participants also indicated how many times they had sex after having “too much” to drink and while under the influence of drugs in the past 3 months. Finally, participants reported their total number of lifetime sexual partners and indicated whether they had ever been diagnosed with an STI. Measures similar to these have been shown to be reliable indicators of self-reported sexual behavior and to yield cumulative indices of HIV risk that are similar to those obtained by partner-by-partner sexual behavior assessments [28,29].

Table 2
Sexting and recreational drug use in the past 3 months

Substance	Individuals reporting engaging in sexting (n = 339) % reporting use of (n)	Individuals not reporting engaging in sexting (n = 424) % reporting use of (n)	χ^2
Alcohol	58.1 (n = 197)	42.2 (n = 179)	19.12***
Marijuana	39.5 (n = 134)	24.8 (n = 105)	19.04***
Ecstasy	6.8 (n = 23)	3.3 (n = 14)	4.93*
Cocaine	4.7 (n = 16)	2.1 (n = 9)	4.00*
Other recreational drugs	7.7 (n = 26)	3.1 (n = 13)	8.23***
Use of any illicit drug	41.0 (n = 139)	25.0 (n = 106)	22.09***

N = 763.

* $p < .05$.** $p < .01$.*** $p < .001$.

Data quality assurances and statistical analyses

All records were examined for inconsistencies and invalid responses. Missing data were excluded from analyses, resulting in slightly different sample sizes (not significant) for different statistical tests. Because distributions of sexual behavior and texting were highly skewed, nonparametric analyses were used [30]. Two-tailed significance levels were used for all tests.

Results

Sample demographic information is listed in Table 1. The sample largely consisted of female and white participants. Although each college class was represented, most participants were in their freshmen or sophomore year. The overrepresentation of students in their first 2 years of college is likely because the majority of participants were recruited from Introductory Psychology, a course typically taken early in the college career.

Cell phone ownership, texting, and sexting

Most participants (99%) reported owning a cell phone, and 96% reported texting in a typical day. The median number of texts sent and received per day was 46–60; 16% of participants indicated they send or receive more than 120 texts per day. Overall, 44% of participants reported engaging in sexting. There was a strong association between sending and receiving sexts— $\chi^2(1, N = 733) = 411.04, p < .001$, but the groups were not completely overlapping; among participants who had engaged in sexting, 62% had both received and sent at least one sexual image, 32% had received a sexual image only, and 6% had sent a sexual image only. Among those who reported sexting, the mean number of sexual images sent (lifetime) was 9.84 (standard deviation = 55.49; median = 3), and the mean number of sexual images received (lifetime) was 16.99 (standard deviation = 69.63; median = 5). Individuals with a history of sexting reported significantly more texting in a typical day (median = 61–75) than individuals who reported no history of sexting (median = 31–45 per day), Mann-Whitney $Z = 6.58, p < .001$.

Sexting and demographic variables

Men (43.8%) reported sexting at rates comparable with women (44.7%), $\chi^2(1, N = 763) = .063, ns$. White participants reported significantly higher rates of sexting (50.5%) than non-white participants (37.6%), $\chi^2(1, N = 763) = 12.85, p < .001$.

Table 3

Sexting and sexual behavior

Behavior	Individuals reporting engaging in sexting (n = 339) % reporting (n)	Individuals not reporting engaging in sexting (n = 424) % reporting (n)	χ^2
Multiple sexual partners, past 3 months	23.6 (n = 80)	9.0 (n = 38)	30.96***
Any unprotected (no condom used) vaginal or anal sex, past 3 months	56.6 (n = 192)	24.9 (n = 105)	80.55***
Sex after having “too much” to drink, past 3 months	33.9 (n = 115)	16.7 (n = 71)	30.11***
Sex after using drugs, past 3 months	18.6 (n = 63)	7.5 (n = 32)	21.06***
Diagnosed with sexually transmitted infection, lifetime	4.7 (n = 16)	1.4 (n = 6)	7.44**
Summary data	Mean (SD)	Mean (SD)	Z ^a
Total number of sexual partners, past 3 months	1.22 (SD = 1.29)	.79 (SD = 2.55)	10.31***
Total male partners, past 3 months	.75 (SD = 1.03)	.45 (SD = 1.41)	6.59**
Total female partners, past 3 months	.47 (SD = .96)	.34 (SD = 2.14)	5.55**
Total unprotected vaginal and anal sex acts, past 3 months	7.97 (SD = 16.87)	2.92 (SD = 10.99)	8.99***
Lifetime sexual partners	4.73 (SD = 7.18)	2.41 (SD = 14.81)	11.38***

N = 763.

^a Mann-Whitney test.** $p < .01$.*** $p < .001$.

Sexting was unrelated to age, year in school, grade point average, employment status, full-time versus part-time student status, or fraternity/sorority membership.

Sexting and substance use

As seen in Table 2, individuals who reported sexting were significantly more likely to report recent use of several recreational drugs, including alcohol, marijuana, ecstasy, and cocaine.

Sexting and sexual risk behavior

Among the subset of participants who reported engaging in sexting (n = 339), most (68.2%) reported never having sex with a new partner after sexting with them first. Among the 31.8% who reported having sex with someone for the first time after sexting with them, 48.6% reported one partner with whom this occurred, 26.2% reported two partners, 14.0% reported three partners, and 11.2% reported four or more partners. As seen in Table 3, individuals with a history of sexting also reported higher total rates of sexual risk behavior. Individuals who reported sexting were significantly more likely to report multiple sexual partners over the

past 3 months, were significantly more likely to report unprotected sex in the past 3 months, and were significantly more likely to report sex after drinking and after using drugs in the past 3 months. Participants who reported sexting also reported a higher number of total sexual partners in the past 3 months and a higher number of total partners in their lifetimes than individuals who reported not engaging in sexting. In addition, participants who reported sexting reported more unprotected vaginal and anal sex acts over the past 3 months than individuals with no history of sexting. Finally, individuals who reported engaging in sexting were more likely to report a history of an STI relative to individuals who did not report sexting.

Given that previous research suggests multiple factors influence high-risk sexual behavior, we performed two sequential (hierarchical) logistic regression analyses to determine the independent relationship between sexting and risk, after controlling for demographic factors, total texting behavior, and substance use, a factor previously associated with high-risk sexual practices [31–33]. The first logistic regression analysis predicted membership in one of two groups: those who reported unprotected sex in the previous 3 months (n = 286) and those who had

Table 4

Sequential logistic regression analysis predicting unprotected sex, past 3 months

Step	Variable	OR	CI	B	SE	p
1.	Gender (reference category = male)	1.60	(1.15, 2.23)	.471	.168	<.01
	Age (years)	1.15	(1.03, 1.29)	.143	.057	<.05
	Race (reference category = white)	.68	(.50, .92)	-.386	.156	<.05
	GPA	.86	(.63, 1.17)	-.156	.159	ns
	Fraternity/sorority membership (reference category = nonmember)	1.33	(.91, 1.95)	.284	.195	ns
2.	Typical texts per day	1.20	(1.13, 1.27)	.179	.028	<.001
3.	Alcohol use	1.24	(1.06, 1.46)	.215	.082	<.01
	Marijuana use	1.32	(1.09, 1.59)	.276	.097	<.01
	Cocaine use	2.29	(.93, 5.64)	.826	.461	ns
	Ecstasy use	.87	(.41, 1.81)	-.144	.377	ns
	“Other” drug use	1.41	(.61, 3.24)	.342	.426	ns
4.	Sexting (reference category = had not engaged in sexting)	2.97	(2.12, 4.16)	1.09	.171	<.001

N = 733.

CI = confidence interval; GPA = grade point average; ns = not significant; OR = odds ratio; SE = standard error.

Table 5

Sequential logistic regression analysis predicting multiple partners, past 3 months

Step	Variable	OR	CI	B	SE	p
1.	Gender (reference category = male)	.92	(.61, 1.41)	-.079	.215	ns
	Age (years)	.98	(.45, 1.14)	-.017	.077	ns
	Race (reference category = white)	.96	(.64, 1.44)	-.038	.206	ns
	GPA	.82	(.55, 1.24)	-.194	.208	ns
	Fraternity/sorority membership (reference category = nonmember)	1.85	(1.17, 2.94)	.617	.235	<.01
2.	Typical texts per day	1.13	(1.05, 1.21)	.119	.036	<.01
3.	Alcohol use	1.27	(1.04, 1.55)	.236	.102	<.05
	Marijuana use	1.30	(1.03, 1.63)	.262	.114	<.05
	Cocaine use	.94	(.42, 2.10)	-.064	.410	ns
	Ecstasy use	1.96	(.94, 4.08)	.674	.374	ns
	"Other" drug use	1.03	(.41, 2.57)	.031	.466	ns
4.	Sexing (reference category = had not engaged in sexting)	2.67	(1.69, 4.20)	.981	.232	<.001

N = 735.

ns = not significant.

not ($n = 447$). Results are shown in Table 4. Demographic variables were entered on the first step and significantly predicted unprotected sex relative to a constant-only model, $\chi^2 (5, N = 733) = 22.42, p < .001$. Female, white, and older participants were more likely to report unprotected sex. The ordinal variable that indicated the number of texts in a typical day was entered on the second step and significantly added to the predictive utility of the model, $\chi^2 (1, N = 733) = 41.55, p < .001$. Substance use was entered on the third step and significantly added to the prediction of unprotected sex, $\chi^2 (5, N = 733) = 39.93, p < .001$. As seen in Table 4, alcohol and marijuana use were associated with unprotected sex. Sexting was entered on the final step and significantly increased the predictive utility of the model, $\chi^2 (1, N = 733) = 41.22, p < .001$, indicating that sexting was associated with unprotected sexual activity in the previous 3 months, after accounting for the influence of demographic factors, texting behavior, and substance use.

The second logistic regression analysis predicted membership in one of two groups: those who reported multiple sex partners in the previous 3 months ($n = 116$) and those who reported zero or one partner in the previous 3 months ($n = 619$). Results are shown in Table 5. Demographic variables were entered on the first step and did not, as a block of variables, significantly predict multiple partners relative to a constant-only model, $\chi^2 (5, N = 735) = 7.51, p < .20$. However, this step was retained as a control and to ensure consistency with the first analysis. As seen in Table 5, sorority/fraternity membership was associated with a greater likelihood of having multiple partners. Texting frequency was entered on the second step, and significantly increased prediction of multiple partners, $\chi^2 (1, N = 735) = 10.97, p < .01$. Substance use was entered on the third step, and improved the prediction of multiple partners, $\chi^2 (5, N = 735) = 30.80, p < .001$. As seen in Table 5, alcohol and marijuana use were associated with having multiple sexual partners. Sexting was entered on the final step, and significantly increased the predictive utility of the model, $\chi^2 (1, N = 735) = 18.82, p < .001$, indicating that sexting was associated with having multiple sexual partners in the previous 3 months, after accounting for the influence of demographic factors, texting behavior, and substance use.

Receiving versus sending a sexual image via text message

To examine potential differences in receiving versus sending a sext, the analyses presented in Tables 2–5 were repeated, first

to compare individuals who had sent a sext versus those who had not and then to compare individuals who had received a sext versus those who had not. For sending a sext, all the analyses showing significant differences in Tables 2–5 were also significant—individuals who had sent a sext were significantly more likely to report the use of all the substances listed in Table 2 and to report higher rates of the sexual risk behaviors reported in Tables 3–5. For receiving a sext, most differences in substance use and sexual behavior remained significant. The only exceptions were that participants who had received a sext were not more likely to report ecstasy use than those who had not received a sext and participants who had received a sext were not more likely to report a lifetime STI than those who had not received a sext.

Discussion

Much of the literature on sexting has focused on the legal and social ramifications of this behavior [9,11,12]. In contrast to sexting among minors, sexting in young adults does not carry the same legal risks of possessing explicit or provocative photographs of underage individuals (i.e., potentially child pornography), but our results suggest it is associated with health-jeopardizing behaviors, including substance use, sex with multiple partners, unprotected sex, and STIs. In this study, a substantial minority of participants (44%) reported sexting, and these same individuals were more than twice as likely to report multiple partners and unprotected sex. The relationship between sexting and high-risk sexual behavior remained after accounting for demographic factors, texting behavior, and substance use. Close to one-third of our participants who had sexted (14% of the entire sample) reported having sex with a new partner for the first time after sexting with them. This finding suggests that sexting may be a sort of technology-mediated flirtation strategy. Previous work suggests that most explicit photo exchange occurs between long-term partners [10,16]. Our findings suggest that some individuals who engage in sexting incur new sexual risks.

In the present study, white participants were more likely than minority participants to report sexting, despite no differences in cell phone ownership or overall texting behavior. Previous work has suggested that white individuals in the United States are less likely to perceive risk in a variety of activities relative to minority individuals [34]; it may be that white participants in the present study were less concerned about the potential adverse conse-

quences of sexting. Although it would be premature to attribute too much weight to this finding in this initial study of predominantly white young adults, future research should examine racial differences in sexting and, if differences exist, attempt to determine whether differences in risk perceptions account for racial/ethnic differences in sexting. Regardless of the relationship between race and sexting, in the present study, sexting was related to high-risk sexual behavior after accounting for race/ethnicity and other demographic factors.

Limitations and implications for future research

The data for this study were collected from a convenience sample of college students in the mid-Atlantic region; generalization to other populations and geographic areas may not be justified. The majority of our participants were white; future research on sexting should collect data from a variety of youth populations. Our methods relied on self-reported behavior, and participants may have over- or underreported sexting, substance use, or sexual risk behaviors. In addition, the use of a cross-sectional study design prevents drawing causal conclusions concerning the association between sexting and risk behaviors.

Our findings suggest a robust association between sexting and global sexual risk behavior; however, we did not assess the specific behaviors our participants engaged in with individuals with whom they had exchanged sexual images. In this preliminary study of the public health implications of sexting, we focused on whether participants had engaged in sexting. We did not assess who participants exchanged sexual images with or the context in which they were exchanged. Future research should use finer-grained assessment strategies to determine the specific contexts in which sexting occurs and the precise risk associated with sexual behavior with sexting partners. Event-level analyses in which participants provide information about the specific sexual risk behaviors they engaged in with sexting partners (especially partners they had sex with the first time after sexting) would clarify the relationship between sexting and sexual risk. Future work should also attempt to assess the nature of the relationship between individuals who exchanged sexual images (e.g., long-term partner, new acquaintance). In addition, the present initial study focused primarily on behaviors. Future research should examine motivations for engaging in sexting and attempt to identify mechanisms that may explain the relationships between sexting and risk. For example, it may be that sexting behavior establishes sexual norms that are related to risk or that underlying personality factors, such as sexual sensation seeking, account for both sexting and sexual risk behavior. Finally, future work should examine whether engaging in sexting is associated with any positive outcomes, such as greater sexual satisfaction or increased closeness in personal relationships.

Despite these limitations, this study corroborates other work documenting sexting in young adults [13,25] and is among the first to document associations between sexting, substance use, and high-risk sexual behavior. Researchers and clinicians who focus on the sexual health of young adults may benefit from adding questions about sexting to sexual risk assessments. Our findings also point to the critical need to regularly follow new technology trends in youth, as they continue to offer the potential to amplify risk.

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ZIMMERMAN EXHIBIT 5

SEX AND TECH

RESULTS FROM A SURVEY OF
TEENS AND YOUNG ADULTS



SEX AND TECH



RESULTS FROM A SURVEY OF TEENS AND YOUNG ADULTS

In an effort to better understand the intersection between sex and cyberspace with respect to attitudes and behavior, The National Campaign to Prevent Teen and Unplanned Pregnancy and *CosmoGirl.com* commissioned a survey of teens and young adults to explore electronic activity. This is the first public study of its kind to quantify the proportion of teens and young adults that are sending or posting sexually suggestive text and images.

The survey of those ages 13-26 was conducted by TRU, a global leader in research on teens and 20-somethings. The survey was fielded online to a total of 1,280 respondents—653 teens (ages 13-19) and 627 young adults (ages 20-26)—between September 25, 2008 and October 3, 2008.

Please visit www.TheNationalCampaign.org/sextech for additional data from the survey, relevant tips for teens and parents, and other related materials. Visit CosmoGirl.com for teen perspectives on sending and receiving sexually suggestive content. (For more information on the survey, please see page 5.)

KEY FINDINGS

Note: Unless otherwise stated, *teen* means ages 13-19 and *young adult* means ages 20-26.

A significant number of teens have electronically sent, or posted online, nude or semi-nude pictures or video of themselves.

How many teens say they have sent/posted nude or semi-nude pictures or video of themselves?

- ➔ 20% of teens overall
- ➔ 22% of teen girls
- ➔ 18% of teen boys
- ➔ 11% of young teen girls (ages 13-16)



Sending and posting nude or semi-nude photos or videos starts at a young age and becomes even more frequent as teens become young adults.

How many young adults are sending or posting nude or semi-nude images of themselves?

- ➔ 33% of young adults overall
- ➔ 36% of young adult women
- ➔ 31% of young adult men

Sexually suggestive messages (text, email, IM) are even more prevalent than sexually suggestive images.

How many teens are sending or posting sexually suggestive messages?

- ➔ 39% of all teens
- ➔ 37% of teen girls
- ➔ 40% of teen boys
- ➔ 48% of teens say they have received such messages

How many young adults are sending or posting sexually suggestive messages?

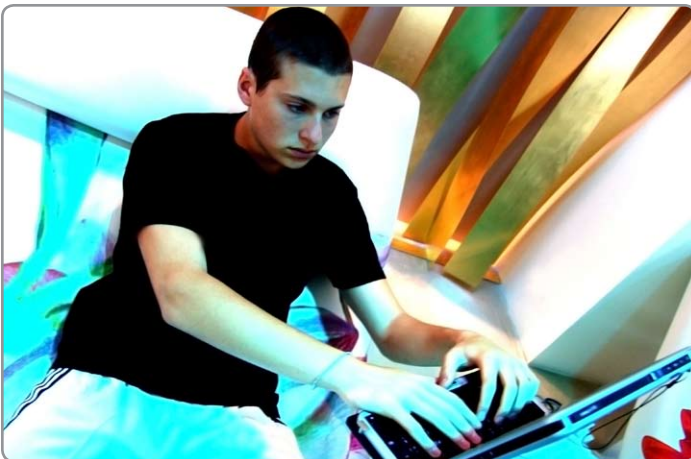
- ➔ 59% of all young adults
- ➔ 56% of young adult women
- ➔ 62% of young adult men
- ➔ 64% of young adults say they have received such messages

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Although most teens and young adults who send sexually suggestive content are sending it to boyfriends/girlfriends, others say they are sending such material to those they want to hook up with or to someone they only know online.

Who are these sexually suggestive messages and images being sent to?

- ➔ 71% of teen girls and 67% of teen guys who have sent or posted sexually suggestive content say they have sent/posted this content to a boyfriend/girlfriend.
- ➔ 21% of teen girls and 39% of teen boys say they have sent such content to someone they wanted to date or hook up with.
- ➔ 15% of teens who have sent or posted nude/semi-nude images of themselves say they have done so to someone they only knew online.
- ➔ 83% of young adult women and 75% of young adult men who have sent sexually suggestive content say they have sent/posted such material to a boyfriend/girlfriend.
- ➔ 21% of young adult women and 30% of young adult men who have sent/posted sexually suggestive content have done so to someone they wanted to date or hook up with.
- ➔ 15% of young adult women and 23% of young adult men who have sent sexually suggestive material say they have done so to someone they only knew online.



FIVE THINGS TO THINK ABOUT BEFORE PRESSING "SEND"

Don't assume anything you send or post is going to remain private.

Your messages and images will get passed around, even if you think they won't: 40% of teens and young adults say they have had a sexually suggestive message (originally meant to be private) shown to them and 20% say they have shared such a message with someone other than the person for whom it was originally meant.

There is no changing your mind in cyberspace—anything you send or post will never truly go away.

Something that seems fun and flirty and is done on a whim will never really die. Potential employers, college recruiters, teachers, coaches, parents, friends, enemies, strangers and others may all be able to find your past posts, even after you delete them. And it is nearly impossible to control what other people are posting about you. Think about it: Even if you have second thoughts and delete a racy photo, there is no telling who has already copied that photo and posted it elsewhere.

Don't give in to the pressure to do something that makes you uncomfortable, even in cyberspace.

More than 40% of teens and young adults (42% total, 47% of teens, 38% of young adults) say "pressure from guys" is a reason girls and women send and post sexually suggestive messages and images. More than 20% of teens and young adults (22% total, 24% teens, 20% young adults) say "pressure from friends" is a reason guys send and post sexually suggestive messages and images.

Consider the recipient's reaction.

Just because a message is meant to be fun doesn't mean the person who gets it will see it that way. Four in ten teen girls who have sent sexually suggestive content did so "as a joke" but many teen boys (29%) agree that girls who send such content are "expected to date or hook up in real life." It's easier to be more provocative or outgoing online, but whatever you write, post or send does contribute to the real-life impression you're making.

Nothing is truly anonymous.

Nearly one in five young people who send sexually suggestive messages and images, do so to people they only know online (18% total, 15% teens, 19% young adults). It is important to remember that even if someone only knows you by screen name, online profile, phone number or email address, that they can probably find you if they try hard enough.



Teens and young adults are conflicted about sending/posting sexually suggestive content—they know it's potentially dangerous, yet many do it anyway.

How do teens and young adults feel about sending/posting sexually suggestive content?

- ➔ 75% of teens and 71% of young adults say sending sexually suggestive content “can have serious negative consequences.”
- ➔ Yet, 39% of teens and 59% of young adults have sent or posted sexually suggestive emails or text messages—and 20% of teens and 33% of young adults have sent/posted nude or semi-nude images of themselves.

Teens and young adults are sending sexually explicit messages and images, even though they know such content often gets shared with those other than the intended recipient.

How common is it to share sexy messages and images with those other than the intended recipient?

- ➔ 44% of both teen girls and teen boys say it is common for sexually suggestive text messages to get shared with people other than the intended recipient.
- ➔ 36% of teen girls and 39% of teen boys say it is common for nude or semi-nude photos to get shared with people other than the intended recipient.
- ➔ 44% of young adult women and 50% of young adult men say it is common for sexually suggestive text messages to get shared with people other than the intended recipient.

- ➔ 48% of young adult women and 46% of young adult men say it is common for nude or semi-nude photos to get shared with people other than the intended recipient.

Young people who receive nude/semi-nude images and sexually suggestive texts and emails are sharing them with other people for whom they were never intended.

How many teens and young adults say they have been shown nude/semi-nude content originally meant for someone else?

- ➔ 38% of teen girls and 39% of teen boys say they have had sexually suggestive text messages or emails—originally meant for someone else—shared with them.
- ➔ 25% of teen girls and 33% of teen boys say they have had nude or semi-nude images—originally meant for someone else—shared with them.
- ➔ 37% of young adult women and 47% of young adult men have had sexually suggestive text messages or emails—intended for someone else—shared with them.
- ➔ 24% of young adult women and 40% of young adult men say they have had nude or semi-nude images—originally meant for someone else—shared with them.

Teens and young adults admit that sending/posting sexually suggestive content has an impact on their behavior.

Does sending sexually suggestive text and images affect what happens in real life?

- ➔ 22% of teens and 28% of young adults say they are personally more forward and aggressive using sexually suggestive words and images than they are in “real life.”
- ➔ 38% of teens and 40% of young adults say exchanging sexually suggestive content makes dating or hooking up with others more likely.
- ➔ 29% of teens and 24% of young adults believe those exchanging sexually suggestive content are “expected” to date or hook up.

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Teens and young adults give many reasons for sending/posting sexually suggestive content. Most say it is a “fun and flirtatious” activity.

Why do teens and young adults send or post sexually suggestive content?

- ➔ 51% of teen girls say pressure from a guy is a reason girls send sexy messages or images; only 18% of teen boys cited pressure from female counterparts as a reason.
- ➔ 23% of teen girls and 24% of teen boys say they were pressured by friends to send or post sexual content.

Among teens who have sent sexually suggestive content:

- ➔ 66% of teen girls and 60% of teen boys say they did so to be “fun or flirtatious”—their most common reason for sending sexy content.
- ➔ 52% of teen girls did so as a “sexy present” for their boyfriend.
- ➔ 44% of both teen girls and teen boys say they sent sexually suggestive messages or images in response to such content they received.
- ➔ 40% of teen girls said they sent sexually suggestive messages or images as “a joke.”
- ➔ 34% of teen girls say they sent/posted sexually suggestive content to “feel sexy.”
- ➔ 12% of teen girls felt “pressured” to send sexually suggestive messages or images.

Among young adults who have sent sexually suggestive content:

- ➔ 72% of young adult women and 70% of young adult men say they did so to be “fun or flirtatious.”
- ➔ 59% of young adult women sent/posted sexually suggestive content as a “sexy present” for their boyfriend.
- ➔ 41% of young adult women and 51% of young adult men say they sent sexy messages or images in response to such content they received.

5 TIPS TO HELP PARENTS TALK TO THEIR KIDS ABOUT SEX AND TECHNOLOGY

Talk to your kids about what they are doing in cyberspace.

Just as you need to talk openly and honestly with your kids about real life sex and relationships, you also want to discuss online and cell phone activity. Make sure your kids fully understand that messages or pictures they send over the Internet or their cell phones are not truly private or anonymous. Also make sure they know that others might forward their pictures or messages to people they do not know or want to see them, and that school administrators and employers often look at online profiles to make judgments about potential students/employees. It's essential that your kids grasp the potential short-term and long-term consequences of their actions.

Know who your kids are communicating with.

Of course it's a given that you want to know who your children are spending time with when they leave the house. Also do your best to learn who your kids are spending time with online and on the phone. Supervising and monitoring your kids' whereabouts in real life and in cyberspace doesn't make you a nag; it's just part of your job as a parent. Many young people consider someone a “friend” even if they've only met online. What about your kids?

Consider limitations on electronic communication.

The days of having to talk on the phone in the kitchen in front of the whole family are long gone, but you can still limit the time your kids spend online and on the phone. Consider, for example, telling your teen to leave the phone on the kitchen counter when they're at home and to take the laptop out of their bedroom before they go to bed, so they won't be tempted to log on or talk to friends at 2a.m.

Be aware of what your teens are posting publicly.

Check out your teen's MySpace, Facebook and other public online profiles from time to time. This isn't snooping—this is information your kids are making public. If everyone else can look at it, why can't you? Talk with them specifically about their own notions of what is public and what is private. Your views may differ but you won't know until you ask, listen, and discuss.

Set expectations.

Make sure you are clear with your teen about what you consider appropriate “electronic” behavior. Just as certain clothing is probably off-limits or certain language unacceptable in your house, make sure you let your kids know what is and is not allowed online either. And give reminders of those expectations from time to time. It doesn't mean you don't trust your kids, it just reinforces that you care about them enough to be paying attention.



DEFINITION OF TERMS

To ensure accurate interpretation, respondents were shown (and reminded of) the following definitions/explanations during the survey:

- **Sexually suggestive pictures/video:** semi-nude or nude personal pictures/video taken of oneself and not found on the Internet, or received from a stranger (like spam), etc.
- **Sexually suggestive messages:** sexually suggestive written personal texts, emails IMs, etc.—and not those you might receive from a stranger (like spam), etc.
- **Messages** only refers to those written electronically (in emails, texts, IMs, etc.)—and **pictures/video** only refers to those captured electronically (on a cell-phone or digital camera/camcorder), etc.

ABOUT THE SURVEY

This survey was fielded online to a total of 1,280 respondents—653 teens (ages 13-19) and 627 young adults (ages 20-26) between September 25, 2008 and October 3, 2008. It was conducted by **TRU**, a global leader in research on teens and 20-somethings.

At present, it is estimated that about 90% of teens and young adults are online. Respondents for this survey were selected from among those who have volunteered to participate in TRU's online surveys. Respondents were stratified according to the U.S. Census and the data have been weighted to reflect the demographic composition of teens and young adults. Respondents do not constitute a probability sample.

This document contains the precise language used in the survey and separate results for teens and young adults, as well as the total combined. For additional data, please visit www.TheNationalCampaign.org/sextech or contact The National Campaign at 202.478.8500.

SEX AND TECH

SEX AND TECH SURVEY QUESTIONNAIRE

1. Are you male or female?

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Male	49	51	50
Female	51	49	50

2. How old are you? _____

RANGE:	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
13-16	49	0	25
17-19	51	0	26
20-22	0	51	25
23-26	0	49	24

3. Which of the following, if any, do you have and use? Please mark all that apply.

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Computer (non-laptop)	79	71	75
Laptop computer	68	77	73
Cellphone	87	86	87
Smartphone (PDA, Blackberry, etc.)	13	23	18
Digital camera	80	82	81
Digital camcorder (video recorder)	29	26	27
MP3 Player (like iPod) without video	55	59	57
Video MP3 Player	50	33	42
Webcam	33	33	33
None of these	0	0	0



4. Do you:

		YES	NO	"Yes"		
				Teens (13-19) %	Young Adults (20-26) %	TOTAL %
A	Have a profile on a social-networking site (like MySpace, Facebook, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	89	90	89
B	Have a profile on a dating or singles site (like match, cupid, or eHarmony)	<input type="checkbox"/>	<input type="checkbox"/>	3	16	9
C	View others' profiles/pictures on a social-networking site	<input type="checkbox"/>	<input type="checkbox"/>	85	85	85
D	View others' profiles/pictures on a dating/singles site	<input type="checkbox"/>	<input type="checkbox"/>	6	20	12
E	Write/update a personal blog	<input type="checkbox"/>	<input type="checkbox"/>	25	34	29
F	Regularly read others' personal blogs	<input type="checkbox"/>	<input type="checkbox"/>	33	50	41
G	Send/receive pictures or video on your cellphone	<input type="checkbox"/>	<input type="checkbox"/>	61	64	62
H	Send/receive pictures or video on a computer	<input type="checkbox"/>	<input type="checkbox"/>	80	83	81
I	Post photos online	<input type="checkbox"/>	<input type="checkbox"/>	78	79	79
J	Post videos online (like on YouTube)	<input type="checkbox"/>	<input type="checkbox"/>	38	31	35
K	Send/receive text messages	<input type="checkbox"/>	<input type="checkbox"/>	84	88	86
L	Watch TV shows online or on your MP3 Player	<input type="checkbox"/>	<input type="checkbox"/>	63	56	60

5. This survey will include questions about "sexy messages and pictures" (like suggestive pictures sent to a boyfriend/girlfriend, for example) – and will require you to answer them in order to finish. If you are not comfortable sharing your opinions about that, then we encourage you to stop the survey now. **Would you like to continue?**

Yes	<input type="checkbox"/>	
No	<input type="checkbox"/>	{TERM}

6. Thank you. Throughout this survey, it is **IMPORTANT** that you understand what we mean so that we interpret your answers correctly. Please keep the following in mind as you read and answer each question:

- ➔ Any time that we ask about "**sexy pictures/video**," we are talking about sexually suggestive, semi-nude, or nude personal pictures/video taken of oneself (alone or by a friend) – and not those found on the internet, received from a stranger (like spam), etc.
- ➔ And any time we say "**sexy messages**," we are talking about sexually suggestive written personal texts, emails, IMs, etc. – and not those you might receive from a stranger (like spam)
- ➔ Throughout this survey, **messages** only refers to those written electronically (in emails, texts, IMs, etc.) – and **pictures/video** only refers only to those captured electronically (on a cellphone or digital camera/camcorder).

{DESCRIPTIONS APPEARED ON MOUSEOVER THROUGHOUT QUESTIONNAIRE DURING SURVEY}

SEX AND TECH

7. How common would you say each of the following is among people your age?

		Not Common At All	Not Very Common	Fairly Common	Very Common	NET "Very" and "Fairly Common"		
						Teens (13-19) %	Young Adults (20-26) %	TOTAL %
A	Sending sexy messages to someone else	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	66	78	72
B	Sharing sexy messages with people other than the one(s) they were meant for	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	44	47	45
C	Sending of sexy pictures/video of oneself to someone else	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	49	65	57
D	Posting sexy pictures/video of oneself online	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	44	51	47
E	Sharing sexy pictures/video with people other than the one(s) they were meant for	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	37	47	42

8. Do you think each of these activities is more common among guys, girls, or both the same?

		More Common Among GUYS	Both the Same	More Common Among GIRLS	"More Common Among GUYS"			"Both the Same"			"More Common Among GIRLS"		
					Teens (13-19) %	Young Adults (20-26) %	TOTAL %	Teens (13-19) %	Young Adults (20-26) %	TOTAL %	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
A	Sending sexy messages to someone else	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	16	15	15	48	53	50	36	33	35
B	Sharing sexy messages with people other than the one(s) they were meant for	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	33	37	35	42	42	42	25	21	23
C	Sending of sexy pictures/video of oneself to someone else	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	6	9	8	28	32	30	66	58	62
D	Posting sexy pictures/video of oneself online	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	5	8	7	30	34	32	65	58	61
E	Sharing sexy pictures/video with people other than the one(s) they were meant for	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	29	35	32	42	42	42	29	24	27



9. What do you think are the reasons that **girls** send/post sexy messages or pictures/video of themselves? Please mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Get or keep a guy's attention	85	80	83
Guy pressured them to send it	47	38	42
As a "sexy" present for a boyfriend	74	73	73
To feel sexy	72	77	74
Get a guy to like them	76	66	71
Pressure from friends	23	16	20
To get positive feedback	57	56	57
To be fun/ flirtatious	78	76	77
To get noticed	80	79	79
In response to one she received	31	30	31
Other: _____	3	3	3
None of these / don't know	2	1	2

10. What do you think are the reasons that **guys** send/post sexy written messages or pictures/video of themselves? Please mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Get or keep a girl's attention	61	58	60
Girl pressured them to send it	18	18	18
As a "sexy" present for a girlfriend	48	49	48
To feel sexy	36	28	32
Get a girl to like them	57	48	53
Pressure from friends	24	20	22
To get positive feedback	48	45	46
To be fun/ flirtatious	56	57	56
To get noticed	49	50	49
In response to one he received	49	56	52
Other: _____	2	3	3
None of these / don't know	8	3	5

SEX AND TECH

11. How much do you agree or disagree that each of the following describes the activity of sending suggestive messages or nude/semi-nude pictures/video of oneself?

								NET "Strongly" and "Somewhat Agree"		
	{LIST RANDOMIZED}	Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree	Don't Know	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
A	Flirty	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	61	75	68
B	Gross	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	39	26	33
C	Hot	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	46	55	51
D	Lame	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	42	36	39
E	Stupid	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	57	50	54
F	Dangerous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	67	65	66
G	Exciting	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	49	59	54
H	Fun	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	43	56	49
I	Harmless	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	23	27	25
J	Immoral	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	40	28	34

12. How much do you agree or disagree that each of the following describes the people who send suggestive messages or nude/semi-nude pictures/video of themselves?

								NET "Strongly" and "Somewhat Agree"		
	{LIST RANDOMIZED}	Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree	Don't Know	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
A	Flirty	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	65	69	67
B	Gross	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	38	30	34
C	Hot	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	35	42	38
D	Lame	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	39	34	37
E	Stupid	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	54	44	49
F	Bold	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	55	66	60
G	Confident	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	46	52	49
H	Cool	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	19	19	19
I	Desperate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	65	53	59
J	Funny	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	24	29	27
K	Immature	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	53	45	49
L	Insecure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	55	47	51
M	Slutty	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	72	58	65



13. Which of the following, if any, have **you personally** ever done? *Please mark all that apply.*

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Sent a sexually suggestive message to someone (email, IM, text, etc.)	38	58	48
Posted a sexually suggestive message to someone's online profile (like on MySpace, Facebook, etc.)	11	17	14
NET sent/posted sexually suggestive messages.	39	59	49
Received a sexually suggestive message from someone (email, IM, text, etc.)	48	64	56
Shared a sexually suggestive message with someone other than the one(s) it was originally meant for	18	23	20
Had a sexually suggestive message (originally meant to be private) shared with me	39	42	40
None of these	39	25	32

14. Which of the following, if any, have **you personally** ever done? *Please mark all that apply.*

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Sent a nude or semi-nude picture/video (of yourself) to someone (via email, cellphone, etc.)	19	32	26
Posted a nude or semi-nude picture/video (of yourself) online (like on MySpace, Facebook, in a blog, etc.)	4	7	5
NET sent/posted a nude or semi-nude picture/video of yourself	20	33	27
Received a nude or semi-nude picture/video from someone (of himself/herself)	31	46	39
Shared a nude or semi-nude picture/video with someone other than the one(s) it was originally meant for	14	17	15
Had a nude or semi-nude picture/video (originally meant to be private) shared with me	29	32	30
None of these	55	38	46

SEX AND TECH

15. {ASKED IF SENT OR POSTED SEXY MESSAGES OR PIX/VIDEO TO SOMEONE}

To whom have you **sent/posted** suggestive messages or nude/semi-nude pictures/videos (of yourself)?
Please think about any/all of those you've ever sent/posted and mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Boyfriend / Girlfriend	69	79	75
Someone I had a crush on	29	20	23
Someone I dated or hooked up with	39	37	38
Someone I just met	7	6	6
Someone I wanted to date or hook up with	30	26	27
One or more good friends	27	20	23
Someone I only knew online	15	19	18
Other: _____	2	4	3

16. {ASKED IF SENT OR POSTED SEXY MESSAGES OR PIX/VIDEO TO SOMEONE}

What are the reasons that you've **sent/posted** suggestive messages or nude/semi-nude pictures/videos (of yourself)?
Please think about any/all of those you've ever sent/posted and mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Get a guy/girl's attention	25	26	26
Pressured to send it	10	6	7
As a "sexy" present for a boyfriend/girlfriend	43	53	49
To feel sexy	24	23	23
Get a guy/girl to like me	17	13	15
As a joke	38	26	31
To get positive feedback	25	21	23
To be fun/ flirtatious	63	71	68
To get noticed	13	12	12
In response to one that was sent to me	44	47	46
Other: _____	2	2	2
Don't know	2	1	2



17. {ASKED IF RECEIVED SEXY MESSAGES OR PIX/VIDEO FROM SOMEONE}

From whom have you **received** suggestive messages or nude/semi-nude pictures/videos? Please think about any/all of those you've ever received and mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Boyfriend / Girlfriend	55	67	62
Someone I had a crush on	22	16	19
Someone I dated or hooked up with	34	36	35
Someone I just met	15	14	14
Someone who wanted to date or hook up with me	43	37	40
One or more good friends	33	28	30
Someone I only knew online	23	25	24
Other: _____	2	3	3

18. {ASKED IF RECEIVED SEXY MESSAGES OR PIX/VIDEO FROM SOMEONE}

Thinking about suggestive messages or nude/semi-nude pictures/videos that you ever **received**, how did getting them make you feel? Please think about any/all of those you've ever received and mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Amused	54	52	53
Angry	6	3	4
Creeped out	22	17	19
Disappointed	7	4	5
Embarrassed	14	12	13
Excited	44	55	50
Grossed out	18	12	15
Happy	40	37	38
Included	12	9	10
Scared	4	5	5
Surprised	55	49	52
Turned on	53	57	56
Turned off	15	13	14
More interested in dating sender	22	22	22
More interested in hooking up with sender	27	32	29
Less interested in dating sender	13	10	11
Less interested in hooking up with sender	14	10	12
Other: _____	4	1	3

SEX AND TECH

19. {ASKED IF SHARED SEXY MESSAGES OR PIX/VIDEO WITH SOMEONE}

With whom have you **shared** suggestive messages or nude/semi-nude pictures/videos (that were sent to you or shared with you)? Please think about any/all of those you've ever shared and mark all that apply.

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Close friend(s)	91	87	89
Other friend(s)	23	21	22
Family (brother/sister, cousin, etc.)	13	18	16
Connected friends (like on MySpace, Facebook, etc.)	17	13	15
Everyone (in a public blog, public networking profile, etc.)	2	2	2
Other: _____	2	2	2

20. What are the reasons you would be concerned about sending or posting **sexy messages or pictures/video** of yourself?

Please mark all that apply.

{LIST RANDOMIZED}	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Already had a bad experience	6	3	4
Could disappoint family	68	46	57
Could disappoint friends	46	24	35
Could disappoint teacher/coach	38	10	24
Could hurt my relationship or chances with someone I like	63	44	53
Could hurt my reputation	74	63	69
Could hurt my family's reputation	53	35	44
Could get in trouble with the law	46	26	36
Could get in trouble at school	48	13	31
College recruiter might see	43	10	27
Potential (or current) employer might see	51	49	50
Potential embarrassment	77	70	73
Might regret it later	83	76	79
Might make people think I'm slutty in real life	63	42	53
Other: _____	7	6	6
Don't know	7	5	6



21. How much do you agree or disagree with each of the following statements?

{LIST RANDOMIZED}		Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree	Don't Know	NET "Strongly" and "Somewhat Agree"		
								Teens (13-19) %	Young Adults (20-26) %	TOTAL %
A	There is pressure among people my age to post sexy pictures/video in their networking site profiles	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	43	38	40
B	Personal sexy messages and pictures/video usually end up being seen by more than just those to whom they were sent	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	72	68	70
C	One has to be aware that sexy messages and pictures/video may end up being seen by more than just the intended recipient(s)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	79	79	79
D	Girls have to worry about privacy (of sexy messages and pictures/video) more than guys do	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	63	65	64
E	<u>People my age</u> are more forward/aggressive using sexy messages and pictures/video than they are in real life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	61	66	64
F	Sending personal sexy messages and pictures/video is no big deal	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	19	26	22
G	Sending personal sexy messages and pictures/video can have serious negative consequences	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	75	71	73
H	My friends have sent sexy pictures/video to someone	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	43	49	46
I	My friends have posted sexy pictures/video on the internet	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	38	38	38
J	People who exchange sexy messages or pictures/video are more likely to date or hook up with each other in real life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	38	40	39
K	People who exchange sexy messages or pictures/video are expected to date or hook up with each other in real life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	29	24	27
L	<u>I am</u> more forward/aggressive using sexy messages and pictures/video than I am in real life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	22	28	25
M	<u>I am</u> more forward/aggressive using sexy messages and pictures/video than I would be if the technology were not available	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	24	34	29

SEX AND TECH

22. Which of the following best describes your current relationship status?

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Not in a relationship	68	36	52
In a casual/dating relationship	15	13	14
In a serious relationship	17	34	25
Married	0	17	9

23. What state do you live in?

Alabama	<input type="checkbox"/> 1	Illinois	<input type="checkbox"/> 14	Montana	<input type="checkbox"/> 27	Rhode Island	<input type="checkbox"/> 40
Alaska	<input type="checkbox"/> 2	Indiana	<input type="checkbox"/> 15	Nebraska	<input type="checkbox"/> 28	South Carolina	<input type="checkbox"/> 41
Arizona	<input type="checkbox"/> 3	Iowa	<input type="checkbox"/> 16	Nevada	<input type="checkbox"/> 29	South Dakota	<input type="checkbox"/> 42
Arkansas	<input type="checkbox"/> 4	Kansas	<input type="checkbox"/> 17	New Hampshire	<input type="checkbox"/> 30	Tennessee	<input type="checkbox"/> 43
California	<input type="checkbox"/> 5	Kentucky	<input type="checkbox"/> 18	New Jersey	<input type="checkbox"/> 31	Texas	<input type="checkbox"/> 44
Colorado	<input type="checkbox"/> 6	Louisiana	<input type="checkbox"/> 19	New Mexico	<input type="checkbox"/> 32	Utah	<input type="checkbox"/> 45
Connecticut	<input type="checkbox"/> 7	Maine	<input type="checkbox"/> 20	New York	<input type="checkbox"/> 33	Vermont	<input type="checkbox"/> 46
Delaware	<input type="checkbox"/> 8	Maryland	<input type="checkbox"/> 21	North Carolina	<input type="checkbox"/> 34	Virginia	<input type="checkbox"/> 47
District of Columbia	<input type="checkbox"/> 9	Massachusetts	<input type="checkbox"/> 22	North Dakota	<input type="checkbox"/> 35	Washington	<input type="checkbox"/> 48
Florida	<input type="checkbox"/> 10	Michigan	<input type="checkbox"/> 23	Ohio	<input type="checkbox"/> 36	West Virginia	<input type="checkbox"/> 49
Georgia	<input type="checkbox"/> 11	Minnesota	<input type="checkbox"/> 24	Oklahoma	<input type="checkbox"/> 37	Wisconsin	<input type="checkbox"/> 50
Hawaii	<input type="checkbox"/> 12	Mississippi	<input type="checkbox"/> 25	Oregon	<input type="checkbox"/> 38	Wyoming	<input type="checkbox"/> 51
Idaho	<input type="checkbox"/> 13	Missouri	<input type="checkbox"/> 26	Pennsylvania	<input type="checkbox"/> 39		

U.S. REGION:

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
East	28	27	28
South	24	29	26
Midwest	17	18	17
West	31	27	29

24. Which of the following best describes where you live?

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Urban, city environment	32	43	37
Suburban or town/village environment near a city	53	41	47
Rural or small town environment	15	16	15



25. Are you... {MULTIPLE RESPONSES ALLOWED}

	Teens (13-19) %	Young Adults (20-26) %	TOTAL %
Alaskan Native or American Islander	0	0	0
Asian or Pacific Islander	13	11	12
Black / African-American	7	7	7
Hispanic / Latino	11	10	11
White or Caucasian	72	74	73
Other	4	2	3

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ABOUT THE NATIONAL CAMPAIGN TO PREVENT TEEN AND UNPLANNED PREGNANCY

The National Campaign to Prevent Teen and Unplanned Pregnancy seeks to improve the lives and future prospects of children and families and, in particular, to help ensure that children are born into stable, two-parent families who are committed to and ready for the demanding task of raising the next generation. Our specific strategy is to prevent teen pregnancy and unplanned pregnancy among single, young adults. We support a combination of responsible values and behavior by both men and women and responsible policies in both the public and private sectors.

If we are successful, child and family well-being will improve. There will be less poverty, more opportunities for young men and women to complete their education or achieve other life goals, fewer abortions, and a stronger nation.



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